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ABSTRACT

Noting that the collective stories of special education have grown out of a tradition that, by its nature tends to perpetuate problems, this book examines such narratives and how they influence thinking and belief about intelligence and learning. It begins by examining how the current story of intelligence developed and illustrates some of the consequences of accepting the concept of intelligence as anything that can be measured or quantified--and defined as normal. The second chapter discusses how deviation from what is considered normal came to be defined as learning disability, and therefore emerged as parallel to the concept of intelligence. An alternative approach to learning, one founded on describing people's qualities rather than measuring quantities thought to represent their thinking and actions, is narrated in chapter 3. Chapter 4 replaces the idea of intelligent with smart, and describes eight ways of being smart, which use the broad concept of multiple intelligences as guidelines. Two tools are presented in chapter 5, which individuals can use to describe how they themselves are smart and how other people are smart. The last chapter describes two programs, Project Smart and Project ABLE, which are a practical expression of the new alternative to learning. Contains 93 references. (BAC)

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What We Call Smart

A New Narrative for Intelligence and Learning

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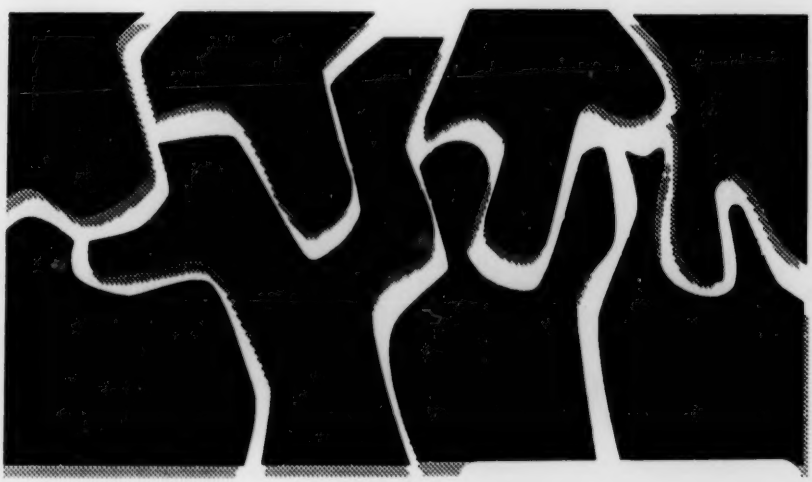

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Lynda Miller, Ph.D.

What We Call Smart

A NEW NARRATIVE FOR INTELLIGENCE AND LEARNING

School-Age Children Series

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What We Call Smart: A New Narrative for Intelligence and Learning
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What We Call Smart

A NEW NARRATIVE FOR INTELLIGENCE AND LEARNING

Lynda Miller, Ph.D.

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Foreword

The books in the School-Age Children Series (SCS) are designed for children with special language-learning needs. Oral and written language-learning difficulties and other communicative disorders place many school-age children at risk for failure. It is the purpose of this series to help these students and their parents, as well as to assist the speech-language pathologists, other special education professionals, and teachers who work with them.

All of the books in the series are designed to educate readers about a particular area of concern and to engage readers in problem solving to reduce the need for concern. Although grounded in theory, the books are applied in focus. Several themes unify the series. First, collaboration is consistently viewed as a desired mode of problem solving. Second, children are seen as individuals whose needs are shaped by multiple contexts that change over time and across situations and cultures. A third unifying theme is change — both change among children with problems and change in the important contexts of their lives. The final unifying theme is relevance. All volumes are aimed at helping professionals become more relevant in meeting the real-life needs of children.

Lynda Miller's book is a consummate example of how to do this. It is a book about strengths not deficits. In this way, it is unique among other discussions of children with specialized language-learning needs. *What We Call Smart* is a book about the stories we tell each other and ourselves. Miller takes the position that the collective stories of special education have grown out of a tradition that, by its nature, tends to perpetuate prob-

lems, not solve them. She asks the reader/professional to take a fresh look at some of the "stories" that are part of our traditional professional lore. Some of the professional self-analysis that accompanies one's reading of this part of the book may make the reader squirm, or even object. However, Miller does not leave us in a state of discomfort without also suggesting an alternative narrative for the student with the language-learning disability or the professional who seeks to make a difference for that individual. This book is about respect for diversity. I hope that its readers will agree with me that its message is long overdue.

Nickola Wolf Nelson, Ph.D.
Series Editor

Preface

This book is the culmination of nearly 30 years of thought, study, experience, conversation, and reflection. Though I have written elsewhere about a number of the issues addressed here, this is the first time I have collected a seemingly disparate group of ideas into what I hope is a coherent whole. Strong impetus for this work came from the exceptional public education I experienced while growing up in Denver and the then-surrounding countryside. The dedication of the teachers under whose tutelage I fell informs much of what is contained in these pages. I was fortunate, too, to have parents who valued the power of learning and education. Lifelong learners themselves, they inculcated in me a passion for finding out how everything works, no matter whether I start as a beginner or as an expert. Curiosity is the *sine qua non* driving the process.

Jerome Bruner has commented that books inevitably reflect a local time and place, while at the same time existing as part of what he calls a more general intellectual geography. No exception, this book arises from both a particular time and place and a more universal cultural geography, to use Bruner's word. The local in this book can best be understood as a coalescence of people and physical geography, beginning in an early childhood memory.

When I was 3 or 4 years old, I recall a fall day when I was riding my horse with my father and some of his friends. My father was a horseman. He had grown up with horses, as a boy spending his summer herding his uncle's cattle along the South Platte River. He knew horses and

studied them carefully, breeding and raising horses to ride for pleasure and to work with cattle. On this particular day we were riding along a creek, winding our way back and forth across it as the terrain required. I was enjoying reining my horse this way and that, making him cross back and forth more often than necessary — back and forth, back and forth, zigzagging along the creek. He resisted at times, tossing his head and trying to follow the others, but I continued my game. At one point, I was the last to cross, which offered my horse a rich opportunity. He could make a break for the barn because there was nothing — Dad or other horses — between him and his favorite place, the barn, which by now was at least half a mile behind us. And he was obviously sick of stumbling back and forth through the creek while the other horses steadily moved ahead without him.

Even though I knew what he was going to do, nothing I did stopped him. He bolted for home, nimbly hopping across the creek and sprinting when he reached level ground. I held on tightly, knowing I would be alright if I didn't fall off — which was a distinct possibility in those early days of riding. Behind me I could hear Dad yelling for me to hold tight, and I could hear his horse and the others catching up to us. We all reached the gate into the corrals and barn at the same time. Dad yelled again for me to hold on, as my horse skidded to a stop, having realized at the last moment that the gate was closed rather than open, its usual position. At last, we were stopped and Dad and the others rode up beside me.

I broke into tears, my fear exposed for Dad's friends to see. I was humiliated that I had been unable to keep my horse from doing exactly what he wanted. Why, I sobbed, couldn't I get my horse to do what *I* wanted?

Dad told me I could do two things. I could either fight the horse all the time, trying to get him to do what I wanted, which would be sure to make the horse balk. If I fought with him or forced him, we would always be battling. On the other hand, if I learned to think like the horse, I could figure out what *he* enjoyed so that we could both have fun. I could pay attention to him to see what he liked doing, which might be walking alongside his horse buddies, or jumping into a pool, or shying away from a suspicious looking log. If he was *already* interested, Dad went on, he would be that much more likely to want to do what I asked. If he was agitated or afraid, he would probably try to get away from whatever it was that was irritating or frightening. In fact, Dad said, if I could think like a critter thinks, I would be able to get along with almost everyone, including people. Then Dad asked me which I would prefer, knowing (as he later told me) that I would choose to learn to think like a horse.

"Thinking like the critter," inelegant as it is and arising from a set of circumstances, places, and people particular to my experience, serves as the central metaphor for this book. The concept expressed by the phrase assumes that the "critter" engages in actions and thoughts possessing an inherent value. It further assumes that the one learning to think like the critter can learn something of value through attending to the critter's ways. Moreover, the concept presupposes a willingness to learn through observing, interacting with, and reflecting on the critter's ways. That is, what is to be learned cannot be specified in advance. Rather, what is to be learned emerges over time and in often surprising ways.

This local geography — the particular people (and animals), times, and places informing my writing of this book — can be seen as part of a larger geography, the more universal pattern Bruner proposes. In my mind, the larger pattern has to do with an increasing sense of public and private distress about our environment, politics, education, and the economy. This larger pattern — the general intellectual geography — seems to be codified in a pessimistic narrative: a sagging economy, polluted environment, sleaze politics, and intolerable dropout rates in our schools. Business leaders lament the sorry state of entry-level workers, while berating managers for their lack of commitment and loyalty to the company. Parents and politicians excoriate the performance of teachers and schools, lobbying hard for reform.

Perhaps more important, the pessimistic narrative seems to convey a perception of disenfranchisement. A growing number of people feel unheard, unrepresented in government, misunderstood in institutions of learning, and unprepared for the world of business and commerce. Many of these people represent cultures quite different from the dominant culture — an Anglo, western European, male culture — monopolizing politics, education, business, and public policy. The story these people hear in the press, on television, and in political speeches is not their story.

The prevailing story in the media centers on competition, and it uses metaphors of battle. We compare ourselves with everyone else in the world, agonizing about our international position in everything from computer technology, high definition television, automobile production and sales, to what our students know about math. We measure things that cannot reasonably be measured, and we believe that science and technology can answer almost every important question. More important in my mind, we accept the idea that some people deserve special perquisites such as enriched learning experiences, admission to prestigious schools, better compensation, more elaborate office, or special

opportunities — all because their IQ is higher or they scored higher on an achievement test.

I argue in these pages for a new story about what it means to be smart. The way we talk and think about "smart" must change. We must revise our story so that when we say "equality," we actually *mean* equality, as opposed to a tacit belief that some people are more equal than others by virtue of characteristics such as learning ability, intelligence, or achievement. And when we say "freedom," we actually *mean* freedom, not a system consisting of ever narrower opportunities for those deemed "slow learners," "learning disabled," "underachiever," "behavior disordered," and so on. I make the case that, as a society, we cannot afford to continue telling a story that hurts and disenfranchises some while bestowing privilege to others on the basis of a fragile and limited concept such as intelligence.

I have framed the body of the book within a prologue and an epilogue consisting of a conversation I had with a friend and colleague, Chris, about what we call smart. Chris talks about her experiences as a mother and teacher, reflecting on her own thinking about the stories we have developed about intelligence and learning.

I begin the body of the book with a look at narratives — stories — and how they influence our thinking and beliefs. I show you how the current story of intelligence developed, illustrating along the way some of the disastrous consequences of accepting the concept of intelligence as anything that can be measured or quantified, let alone codified into our social practices. I then turn to a discussion of how the concept of learning disabilities became real, showing how its history mirrors the political and social agendas associated with the acceptance of the story of intelligence. I end this portion of the book in Chapter 3 with an examination of how our biases show in the stories we tell about people — ourselves and others.

In the second part of the book, Chapters 4 through 6, I propose a new narrative, a new story about what it means to be smart. Beginning with an appeal for an alternative to a technological view of people and their actions, I describe for you a model that views everyone as smart and capable. Grounded in an ethic of caring and commitment, the model provides a means for telling new stories about how people are smart. Finally, I tell you about a process called Smart Profiling, which allows people to discover how they themselves or others pay attention, make decisions, solve problems, and communicate. I tell you about people who have used Smart Profiling so that you can see some of the practical implications of using the new narrative about smart.

My purpose in writing this book is to urge you, the reader, to consider the following: When we accept that everyone is smart, often in ways we had never before considered, we make a quantum leap toward solving seemingly intransigent problems. Indeed, when we realize how everyone is smart and what that means to individuals and to society, we begin a new story of what it means to be alive and human.

To Lynn

Acknowledgments

In any book, many people contribute to its existence. This one is no exception. In the process of writing it, I have talked with a large number of people about the ideas and concepts I have included here. I have talked with individuals, small groups, and large groups. The formats have varied from talking over a cup of coffee, to presenting an invited paper at a conference, to presenting audioteleconferences to people scattered across the United States and Canada, to receiving anonymous reviews of articles I have submitted for publication.

Each time I talked with someone — whether in person, by telephone, or in writing, I learned something new — for instance, an illustration that didn't make sense, an organizational strategy that backfired, a particularly humorous story that clarified a point, an idea that sparked someone's thinking. Every one of those conversations contributed significantly, though I often cannot pinpoint how or where. I am appreciative of the willingness of these people to both listen and talk with me about the ideas and concepts discussed here.

Several people have provided significant assistance. Without their generous support, whatever merits this book may have would be significantly reduced, if not totally eliminated. In particular, Lynn Miller acted as an ongoing critic, querying me at crucial points about such matters as organization and specific concepts, while providing a steady stream of numerous and relevant examples, illustrations, and related readings and events in the fields of performance art, theater, and writing.

Joli Jensen offered considerable insight into the role and power of narratives, as well as how I might use narrative more powerfully in my writing. Ro Scudder helped me to clarify the purposes of the book and how to state them both explicitly and implicitly throughout the text. Nicki Nelson provided provocative questions that served to clarify my thoughts and writing throughout the entire process of writing the book. Jody Deem cheerfully suffered through several drafts of the manuscript, each time relating her understanding of what I was trying — not always successfully — to say. Cathy Pidek and I had numerous phone conversations during which she would jump start my sometimes flagging spirits.

Chris Newbill and I have talked about this book since I first began thinking of writing it. Her contributions show in both the Prologue and Epilogue, though she is far too modest to admit it. Her colleague, Anna Zamora, has supported my activities in the Albuquerque Public Schools for almost 10 years, making it possible for me to carry out the bulk of my research.

And, finally, Marie Linvill, along with her colleagues at Singular Publishing Group, has provided — with considerable patience and tolerance — the support and encouragement necessary to make this book a reality.

To each of these people, I offer my gratitude and appreciation for their generosity. Their ideas and contributions have been invaluable to this project. Any limitations or shortcomings must, of course, be considered my own.

Prologue

These comments, and those in the Epilogue, are taken from a taped conversation I had with Chris Newbill in August of 1992. In our conversation, Chris talked about her thoughts, both personal and professional, about the ideas I describe in this book. She related her experiences as the mother of a child identified as being deficient or disordered, and she talked about her perceptions as a teacher.

Chris: I think your new narrative has the potential to be extremely enriching. I think our culture, like you say in the book about being the best and everything, is evolving from a competitive to a collaborative culture. Not in every aspect of our culture, but certainly there's a lot more going on in that sense than there has been in the past, so having a tool that recognizes the unique values of each person I think can really help maximize human potential.

I see what happens in school as the process of hurt; that kids get hurt and left out. What happens is a great loss of human potential. When you think about if we put all that creative energy — all that potential problem-solving ability across all the intelligences, all those different kinds of energies — to work on a problem, you can think about the potential we have to work on the huge issues that face us, like the environment and all the problems we have to solve.

So, that's the big picture for me — human potential, the potential for more people to experience self-love and self-care and self-determi-

nation. You know the world is filled with novels about hurt and lack of growth because of feeling like you don't belong, that there's something wrong with you. So I just see your ideas as an energy or effort in the opposite direction.

A lot of this ties in with belonging, with a sense of belonging. I have read Rudolf Dreikers for years, and really believe that you can't address self-esteem until you address the issue of belonging. And so, what this Smart Profiling process does is help kids figure out where they feel comfortable, where they belong, and it helps teachers understand that they need to open up a sense of belonging at school, that everyone needs to belong. It's not really a school community unless everyone belongs in some way. And the strengths on the profile are a way to begin to belong. It's not the only way to belong, but it's a way to begin to belong. So I see it as liberating in that sense for all the kids who have been told they don't belong.

In terms of minorities and women, it just all fits together. I've done more thinking about gender biases than I have about ethnic biases because I really think the intelligences cross all ethnic differences, that they're expressed culturally in different ways across cultures, but that there are people who have every combination of strengths and different intelligences across all cultures and ethnicities. But I think we program males and females so differently, we raise them so differently in our society and probably in most cultures; that's been something I've thought about more.

I think that schools are still very dehumanizing places for kids to live and be. And when I talk about the Smart Profile and its context, I really feel like I'm talking about moving us toward a humanistic community, where education is thought of in a much broader sense, where we move toward community, where the educational process is a move toward community. And so, it goes back again to belonging, a community in which everyone belongs, where everyone has a contribution to make. Probably, my feelings are very much influenced by having been in special ed for so long. What we've done is create all these parallel universes in hierarchical form: "It's better to be learning disabled than communication disordered. It's better to be communication disordered than behavior disordered. It's better to be behavior disordered than mentally handicapped." On and on. We have this pecking order.

For the most part, we're still moving toward deficits, identifying deficits, labeling kids, testing the masses. Now, with the change in state standards, we just may maintain the status quo. I don't know. I always think we're on the verge of something happening, and yet I go on and on, and the change happens inside me and in some cases I can help make

it happen for individual kids, but, in general, I haven't seen the paradigm shift that people talk about. I really haven't.

I see Smart Profiling affecting systems — not just school systems, but organizational systems. I think the push, or the basic value I see in a lot of different thinking going on in writing, is about how systems are flattening out. People are being empowered to make their own decisions. This whole school reform toward school-based management and community orientation is an example. Educators are saying, "We're a school community and we're going to work it out, take the journey together and not have it imposed from above." I think your idea fits with that whole movement. And I think a lot of it — I'm sure I'm biased — comes out of the feminist movement.

Before I heard you speak the first time about Smart Profiling, I was disturbed about the numbers of kids being labeled and placed in special ed. I had no way to articulate how it should be different, except to blow it all up. I knew it didn't work the way we were doing it. It didn't work for me that I was participating in a process that did more harm than good. And I was a "good" special ed teacher. When I was a BD (behavior disorders) teacher I was "good." But, in the larger context, it wasn't worth it. Does that make sense? But I had no way to articulate that for myself and for others. It was like I was still counting gains on the Brigance, I was still counting, *counting*. How many good days, how many reading levels, how many months' growth. I was trying to tell kids to believe in themselves and to trust themselves, and to hold their head up high, but I had no way to show them how to do that.

Lynda: The numbers were always against you.

Chris: Yeah. It was like I was a Pollyanna. I had a lot of successes. You know, I realized after I left Montezuma (an elementary school) and I got into this, how multi-intelligence oriented I was as a resource teacher because we did lots of art. I was supposed to be teaching reading and writing and lots of music and lots of performance, lots of bodily stuff. And I think it was just intuition that I included so much. And people thought I was nuts. People from the university would come over. My coordinator would tell people at the university, "Take your student teachers and go look at Chris Newbill's class. It's wonderful what she's doing."

And they would come in and they would be very polite, and they would leave because it was not the traditional model of a resource room. I didn't have kids in carrels. They weren't doing tapes. They weren't doing programmed learning. We weren't doing flash cards. We weren't counting and doing daily data.

I remember one time they came, and I forgot they were coming. We were doing Chinese New Year's, and we were playing some game, a Chinese game that had to do with numbers. Anyway, all the kids were just *so* involved in it that it was like a circus in my room. They were so intent. And, boy, the people from the university were really upset because they didn't see how Chinese New Year's fit. That was so removed from curriculum. And I didn't read individually with every kid that day, and all this stuff.

It's funny that I'm teaching in that program now at the university. Here I am teaching it, and I have all my students profile themselves at the university.

So it's changed a lot of their thinking over there [at the university] — some of them, at least the ones who've given me opportunities. They were the same ones who used to send people to look at my program. I never got any call-backs. I never had student teachers.

But I didn't have a way to articulate what I believed. I just did it from intuition. And I did it because it was fun for me. Otherwise, teaching would have been horribly boring. I mean, Ardele and I would do stuff, like, we had that superlearning where you play certain passages from Vivaldi and Bach, and the kids would just get so turned on by it. We were using music, we were producing plays, we were videotaping all the time.

So what your ideas have given me is a way to make sense of my beliefs and articulate what I believe. And now, I see it as a way to keep myself focused, because I tend to be a dilettante. I flit from one thing to another. I love new ideas, and I get bored very easily, so I'm constantly searching for new input, new stimuli. And now I can see something new and I can decide whether I should spend time on it, whether it is something that will enhance what I'm doing. So it's given me focus that way.

Lynda: Is your experience with parents that they respond differently when you talk Smart Profiling in comparison with when you used to — or other people continue to — talk test scores and numbers?

Chris: Usually what happens is that someone else has talked test scores and numbers with them, and when I come in, I can feel — if it's someone whose child is having difficulty or is identified as having difficulty — I can feel the alienation and the fear: "Don't tell it to me again." They're very on guard. And when I start talking about strengths and smarts and asking them to tell me the story of their child, immediately the tension level goes down. Immediately they become engaged. They often tell, first, all the hurt. They have to get the hurt out — "What

they've done to me and my child at the school." And then once they get past that, and we start discussing the positive, I think they feel empowered. They feel like they have a way to go back to school and talk about their child.

They say, "You know, I don't know what to say to them. I don't know how to describe what he can do, or how he or she is at home." Sometimes we even script it. Not written, but we script, like, you can say these things, and you can make very polite suggestions that perhaps your child would respond more or better in this way. And so they usually feel pretty quickly that I'm an ally rather than the enemy.

And when I talk to parents about it, that's what I call it, a journey. It's not a test, it's not a thing. It's a journey that you travel on together with kids, so you're constantly informed, re-informed, and informed in new and different ways about strengths and how they change over time.

I have to say that a lot of what I've learned about kids and about myself comes through Meghan [Chris' daughter] because when she was in first grade (she's now in seventh grade), I heard you speak at the conference in California, and at the time, Meghan was being identified at school as being deficient, as not fitting in, as not a happy camper. "There's something wrong with her. She won't sit at her seat and do her seatwork."

She was pouring water on the playground and showing her teacher where she threw up so she could call me to come get her. She was saying, "I'm outta here. This is not making me feel good." And so when I heard you speak at the conference, there was a click that attached to my experience about what Meghan was going through.

Lynda: I didn't realize that — that she had been identified as being deficient.

Chris: In fact, one day I walked into her first grade classroom, and there was a sign, a ditto sheet, taped to the door. "Support team meeting, such and such a day, Meghan Newbill." Up where everyone could see it, and I just went ballistic. What is this? No one had said a word to me about it, and so I was in that process of trying to communicate with that school, trying to figure out what was going on, and Meghan didn't know what was going on. She was only six. You know, you hear what you need when you hear it and you need it; it fits together. I came back and started thinking about it, and I actually sat down at my computer with Meghan and told her all about what you had said, and said, "Let's figure out what your smarts are, your strengths." And we actually profiled her together to try and find a way for us to understand what was happening and a positive way out of it.

She had dug herself in pretty deeply with this teacher and it was just this past year, as she finished sixth grade, she said to me, "You know, I think I finally recovered from what happened to me in first grade. I finally feel better about myself." Because the teacher would always say, "Well, everybody dadada, *except* Meghan and Tanya." And she would always add that because Meghan refused to do things that were boring and that were not of interest to her the way she was smart.

So that was a sort of parallel journey for me in this philosophy, or this way of thinking, and Meghan's history and career in school.

Meghan was being told, "You don't belong. For some reason, you're not buying the program. You're not willing to sit for two hours and do dittos." She just wasn't buying it. She never has changed her basic orientation toward the world.

Meghan's career at Governor Bent [elementary school] — I don't know if it's illustrious. Maybe notorious is the word. So I got to know everyone over there pretty well because I took her out of that school and took her to another school and then took her back when _____ became principal. And so I had been in Governor Bent before Meghan even hit the door and gone through the whole history and all the testing.

We had the whole testing done at Lovelace, the IQ testing, the OT evals., all of that stuff done, searching for a way to communicate together with the school about what this child's needs are, which never got me anywhere with that other school. So I took all of that back with me when we went back to Governor Bent. The interesting thing, which I think is a really screwed up thing about our culture, is that in the meantime, Meghan had been identified as gifted. Well, that changed everything. Now suddenly, "Oh, that's why she's so unusual. Because she's gifted."

Lynda: Yeah. If she'd been unusual because she'd been identified as having a behavior disorder . . .

Chris: Or a learning disability. And if you looked at the state standards, and if you looked at her scores, technically, she'd be learning disabled because she has wide swings, which, if you look at the profile, make perfect sense — why her testing comes out the way it does.

But anyway, we took all this history and bundle of papers and stuff back to Governor Bent, so we had lots of contact, and I guess we all just got to know each other that way. And, also, I ended up in a women's group with two of the teachers, and so we were talking about Gardner and reading about Gardner together, and that's really how it all started at Governor Bent. The two teachers of the gifted started implementing Gardner's stuff, and then we just blended the Profile into that. And

it's really grown from their program into being implemented in the whole school.

When they invited me to come address the staff and the parents, it was as a parent. It wasn't as a parent, it was as *Meghan's* parent. Because Meghan knew everyone in the school very well by the time she left. People either really liked her or they really didn't like her, the adults. She really irritated some adults. And she had a reputation. For example, in the mock trial, she, as a third grader, was on the jury, and they had a mistrial because she was the only one who refused to vote guilty because she did not believe — it was circumstantial evidence — so she had some argument, and all the fifth graders were furious with her because she wouldn't change her vote. Things like that happened a lot.

Another example of being intrapersonal is that you have strong convictions and you're not led by the crowd. She was up to her hips, you know, and she's standing up there saying, "No."

The next year she was the wife of the accused, and she showed up at the trial in a black dress and black veil, over her face, and did it as theater, the only one in the whole school who showed up in costume. She got up on the stand and cried because her "husband" had been wrongly accused, and he was acquitted. She was the only one who showed up in costume.

So things like that have happened over the years that she was kind of a — what do the Japanese say — the nail that sticks up? But she didn't get pounded down.

And all of that happened parallel to my development with the Profile.

A Modern Fable: The Story of Intelligence

Those of us in the many professions encompassing education, teaching, and learning are in crisis. Chafing under the weight of the innumerable rules, regulations, policies and procedures that form the structure of the educational enterprise, we seek nevertheless to foster spontaneity and creativity. At the same time, we feel beleagured by the constant attention to an apparent slippage in the achievement test scores of American students. Thus, we find ourselves saddled with an ever-increasing array of tests and measures with which we are expected to demonstrate the knowledge and progress of our students.

We identify increasing numbers of students in need of special educational attention, primarily through the use of materials and procedures designed to seek out and label deficit conditions known alternatively as learning disabilities, communication handicaps, behavior disorders, multiple handicaps, as well as others. At the same time, national attention focuses ever more closely on the establishment of national testing

standards to identify those students who fail to meet nationwide criteria across content areas. As Howard Gardner (1989) puts it, we Americans are Westest, Bestest, and Testest. We prefer the more familiar values and attitudes of the Western hemisphere, though recent encounters with the Eastern nations have served to broaden our attention. We prize being best in everything, the arms race, the space program, the computer industry, the automobile industry — and the test scores of our students. Just to make sure we know our rank, we utilize tests to measure our students against those of other nations.

My purpose in the pages that follow is to examine the outgrowths of this bestest and testest orientation, including discussion of several concepts and events that have shaped our present concerns about the educational enterprise. I want to show how many of the educational policies and procedures we practice have evolved from the cultural orientation toward being the best (especially in our abilities and knowledge) and toward testing to make sure that we are the best. More specifically, I hope to show that this bestest and testest orientation is founded in a pessimistic style of explaining human learning and ability, and that an optimistic explanatory style offers a welcome and refreshing antidote to many of the ills of our present educational system. I also want to demonstrate that the optimistic explanatory style, grounded in an ethic of caring and confirming, can supplant the traditional, competitive approach to learning and development. In the following pages and chapters, I examine the following:

- the power of stories and narratives;
- how the concepts of intelligence and learning disability have influenced our thinking about learning, self-worth, and position in society;
- what numbers represent and the consequences of attempting to measure quantities (height, weight, age) as opposed to qualities (e.g., learning ability or language knowledge);
- the consequences of the emphasis on measurement and test scores
- how a deficit perspective, manifested in a pessimistic explanatory style, permeates educational policy, instructional design, and student placement;
- the benefits toward learning, knowledge, and ability of a perspective of competence, or abundance, emanating from an optimistic explanatory style and an ethic of caring; and
- the advantages of viewing everyone as smart in multiple ways.

UNDERSTANDING PEOPLE THROUGH WORDS AND STORIES

I am concerned about the existing stories we tell about intelligence and learning. The story that has developed about these two concepts is that some people are better at thinking and learning than others and are, therefore, more deserving of certain perquisites such as enriched learning opportunities or admission to a coveted school or job. What this means is that the others — those who are said to be less good at thinking and learning — require certain remedial interventions to "fix" their perceived lack of ability.

As I see it, the essential question is: Who benefits and who loses from such a story? Who do we say deserves power, and who do we say deserves intervention, which in many cases is simply a systematic approach to control and manipulation? I think the answer lies in the story itself, in the narrative we have constructed to explain to ourselves what we think learning and thinking are. To understand how we think about intelligence and learning, we must first understand the power of stories — narratives — to influence our thinking.

Jerome Bruner (1990), the psychologist known for his lifelong work studying language and thinking, argues that there are two major forms humans use to explain and understand their world: the logical and the narrative. The logical form can be viewed as the description of choice for those preferring an "objective" approach, while the narrative form is preferred by those who take a more "subjective" stance.

The logical explanation is an attempt to verify truth through appeal to pre-established procedures that institute formal and empirical proof of any given proposition (Bruner, 1986). According to Bruner, it leads to a search for universal truth conditions through the use of the falsification of hypotheses or through the construction of *if-then* propositions. The logical explanation uses categorization and conceptualization to establish general causes, and it makes use of procedures to test for empirical truth, as well as to assure veracity (Bruner, 1986).

The logical explanation often relies on the use of numbers and quantification as part of the verification process. Numbers and quantification are used to support the system of arguments laid out to convince one of a certain truth or fact. Large aggregates of numbers, in the form of data, are the basis for the statistical operations performed to illustrate the truth or falsity of a given hypothesis. As I show in Chapter 2, test instruments rely on the collection of test data from large numbers of people; these data then serve as the standards against which others are held.

When used to describe human beings, logical explanations typically take the form of a statement of hypotheses about the person's behaviors or symptoms, followed by a series of test results used to support one's claim about one or another hypothesis. The test scores themselves are believed to supply the information necessary to describe — even explain — the human under scrutiny. In a logical explanation, the lack of test scores — data — seriously weakens any argument for or against the stated hypotheses. The goal of the logical explanation is to know the truth about this particular person, and data are needed to test the hypotheses and to provide evidence supporting any given explanation.

The narrative description, on the other hand, is an attempt to endow experience with meaning (Bruner, 1986). It focuses on human intention and action, which it locates in time and space. The narrative is concerned with the particulars of human experience, with its individual and unique aspects. In fact, the narrative organizes human experience through a recounting of people's actions, their beliefs and desires, and their striving toward goals and meeting obstacles along the way (Bruner, 1990).

Bruner (1990) contends that the narrative form may exist in humans as a "readiness or predisposition to organize experience into a narrative form" (p. 45). He goes on to suggest that stories provide a means whereby we can discern intentional states in ourselves and others that render our — and their — actions comprehensible. In other words, we use stories to explain and to understand our own and others' behaviors. Stories seem to arise as a natural outgrowth of our human desire to understand why we behave as we do and why others behave as they do.

Bruner (1990) states that one of the primary characteristics of stories is that they allow us to highlight subjective states, attenuating circumstances, and alternative possibilities. Through this highlighting process, we come to understand the intentions of those about whom we construct narratives. Stories provide us with vicarious experiences, opportunities to "live" others' lives, see other perspectives, try on other actions and thoughts.

There is even evidence that we frame experience most typically in narrative form (Mandler, 1984). In fact, Mandler proposes that memory seems to depend on narrative structures. Mandler's work indicates that whatever is not structured in narrative form is often lost in memory. Thus, our understandings of ourselves and others are most likely entered into our memories in narrative format. What we remember most readily is that information that has been coded narratively in our memories.

Perhaps the most distinguishing characteristic of the narrative form of explanation is that it must be interpreted. As Bruner (1990)

points out, unlike logical explanations, the narrative is impenetrable to inference and induction; it resists any *logical* procedures for establishing what it means. There is no set of atomic propositions to which to apply logical operations, nor is there any way to arrive at the truth conditions of a narrative. Further, the gist of any narrative is always ambiguous, subject to different interpretations. The meaning of any narrative resides in the ambiguous and complex realm of the individual participants in the narrative, as well as the communicative context within which the narrative occurs.

Thus, narratives, or stories, can be seen as a means by which to organize our understanding of our own and others' behavior in all its richness and complexity. Removed from the constraint of proving truth or factuality, the narrative offers a vehicle for organizing our understanding of people — their particular motives and reasons for acting as they do, their peculiarities and idiosyncracies. As Bruner (1990) points out, narratives are systems reflecting cultural meanings as well as individual meanings. These narratives are concerned with describing the conditions under which differences in meaning (i.e., individual variations away from the "norm" or the "average") can be resolved. The process by which narratives resolve differences in meaning is through invoking extenuating circumstances that can explain divergent interpretations. Thus, narratives, by their nature and structures, allow for an accounting of how people interpret "reality" in different ways — that is, how people construct meanings for themselves.

More important, the narrative accords an opportunity to understand the inherent value in each person as related through her story. It confers validity on the subject of the story through revealing the meanings informing her actions, thoughts, feelings, and desires. It reveals to the listener (or reader) who this person is, constructing for the listener a coherent account of this person as she lives her life. Neither abstract nor removed from ordinary life, the narrative conveys to the listener, not truth or facts, but meaning and significance from the viewpoint of the person whose story is being told.

Our modern lives constantly require us to interpret narratives. Television advertising, for example, is an attempt to create a compelling narrative to convince the audience to purchase a given product or service. Election year politics is a contest to see which candidate can produce the most persuasive story — the one the electorate most wants to hear. Daily news reports are couched in story form to make them more "real" to listeners, viewers, or readers. And who can forget the ongoing debate about multiculturalism? The multiculturalism disagreement centers on different and disparate stories — different interpretations of the

same events and circumstances, as seen through dissimilar perspectives and thus told through unlike stories.

Perhaps the most arresting characteristic of narratives is their invisibility. In many cases, we scarcely know we are using a narrative to explain how others behave, for example, or why certain events occur. We rarely stop to consider the origin of the explanation we invoke, instead assuming that everyone knows what we know, or, if they do not, they must be mistaken. Only in the face of strong opposition, as the multicultural debate illustrates, do we recognize that we are basing our conclusions on the stories we have come to accept as reality itself.

In the paragraphs that follow, I discuss the story concerning intelligence: how it evolved and solidified into its present-day form, and some of the consequences of our present beliefs and attitudes toward being intelligent. As you read, I urge you to examine your own beliefs about intelligence. More important, I invite you to discover the nature of the story many people have come to accept as true. And, above all, ask yourself who benefits and who suffers from this story.

WHAT IS INTELLIGENCE AND WHERE DID IT COME FROM?

My own concept of intelligence was challenged when I started my first professional job in 1964 as an English teacher in a junior high school near Denver. I was assigned to teach seventh grade English and English literature to a group of students identified as being "low track." What this meant was that these students were regarded as below average, less capable than their peers, and most likely difficult to teach. Most of the students were Hispanic and lived in a lower-class neighborhood although some were non-Hispanics from middle-class areas of the community.

I had received my bachelor's degree in English literature and collected the necessary education credits to obtain my secondary teaching certificate in Colorado. During my undergraduate education, I learned, both directly and indirectly, that to be intelligent meant being able to read, write, and manipulate and discuss ideas, especially through literature, history, science, and philosophy. I graduated with the idea that I would be teaching some of these processes to secondary students eager to participate. As I learned the first day in the classroom, I was wrong on several counts.

Many of the students in my classes were poor readers at best, unaware of the conventions of talking about language. Most were skeptical that anyone would want to talk about language in the first place, let alone

commit to memory what was to them irrelevant information about nouns, verbs, or adverbs. To them, the stories I assigned as part of the literature course were fables and fantasies from another world. In short, what I offered to teach made little sense in their experience.

At first, I blamed the students for their inabilities to read and to write. I was impatient that they could have gotten to seventh grade without being proficient. I wondered about their intelligence, because, after all, (I thought) intelligence resides in one's facility with speaking and writing articulately. More telling, these students were referred to in this district as "low track" because their IQ and achievement test scores were noticeably below average. In spite of my biases about intelligence, I developed a quick admiration for the ways these students negotiated the social world, including their interactions with me. They could manipulate me faster than my realization detectors could switch on. Also, as I learned about their lives outside school, I discovered that many were contributing significantly to the economic resources of their families, either through holding jobs or through managing some critical aspect of the household such as cooking, cleaning, or child care. I even learned that the class "tough" assisted his mother in her business as a seamstress.

My experiences with these students created significant questions. How, I asked myself, could these students *not* be intelligent when they were obviously smart in so many ways? Why must a person be proficient in language, particularly reading and writing, to be considered intelligent? What *is* intelligence, anyway?

My decision to investigate these questions began a lifelong study. In the course of my undertaking, I learned that, while intelligence as a concept has been around for a long time, it is only in the last century that it has become accepted as a real thing, measurable by IQ tests, and represented by the IQ score. In the following sections, I want to share with you what I learned about how intelligence became "real" in the last century. The story is revealing and offers an opportunity to examine the issues I raised earlier about who benefits and who suffers from our current attitudes and beliefs about intelligence.

How Intelligence Got Real

Although other writers (e.g., Gardner, 1983; Gould, 1981; and Sternberg, 1988) have related how the modern concept of intelligence emerged and developed in psychology and later in the general public, I want to summarize the story here to show that the concept of intelligence is just that — a concept, not an immutable truth or fact. Concepts,

because they are ideas, are highly subject to influence by prevalent cultural and social beliefs and practices. The history of how the concept of intelligence was formed and developed over time — its story — is a fascinating tale of how prevailing beliefs and attitudes shaped a large number of social and political events and influenced numerous lives.

The most complete and readable summary of the story of intelligence is Stephen Jay Gould's *The Mismeasure of Man* (1981). Gould is a paleontologist, a scientist who studies fossils and ancient animal life. His interest in intelligence arose from his desire to bring science and its discoveries to the attention of the nonscientist. In considering the arguments made about intelligence, Gould became concerned about how science was misused in the development of the concept of intelligence and intelligence testing. In addition, he was concerned about the social and political results of those misapplications. In fact, Gould considers the use of psychological testing to rank students' worth on the basis of the single IQ score the "major misuse of science in this century" (p. 20).

Gould (1981) makes two main points. The first is that intelligence has not been shown to be any physical object or real thing. Rather, he suggests that intelligence is one's ability to face problems in an unprogrammed or creative manner. He goes on to argue that intelligence is what he calls "the ground of culture," not a biological entity. He sees intelligence as the product of cultural evolution, which is distinct from biological evolution. However, because of the efforts of a group of American psychologists, the concept of intelligence has been endowed with the status of a real object — it has been reified, or made real. As a result, most people accept the idea of intelligence as something real, as something each person possesses that is immutable and unchangeable.

Gould's second major point is that using an abstract concept such as intelligence to quantify and rank people's worth is an exceedingly dangerous enterprise. He points out that this sort of ranking is a fallacy because ranking implies quantification, or measurement resulting in one single number for each person — the IQ score. Further, Gould shows how this sort of ranking can lead (and, as he shows clearly, has led) to the erroneous conclusion that oppressed and disadvantaged groups — races, classes, sexes — are found to be innately inferior and deserving of their reduced status, with all of this based on the measurement of something that exists only as an abstract concept at best.

How did these fallacies come about? The story is an interesting primer in the politics of science. It begins in Paris at the turn of the century, where Alfred Binet was given the task of devising a series of measures to identify Parisian schoolchildren who needed help in school.

Binet developed a battery of short tasks related to the problems of everyday life, administered them to scores of schoolchildren, and assembled the tasks into three versions of the scale which would set the standard for measuring intelligence for years to come (Binet & Simon, 1911; Binet & Simon, 1916). Binet's scale yielded an intellectual level, which was calculated by subtracting children's mental ages (as determined by the tasks he adminstered) from their true chronological ages. His tasks, different for each age group because they were based on developmental changes with increasing age, were formulated in an age-scale format. In an age-scale format, those items passed by a majority of children at a particular age are assigned to that age level. Thus, the items passed by 6-year-olds would be different from those passed by 10-year-olds.

It is important to note that Binet's purpose, which he expressly stated (Binet & Simon, 1905), was not to rank students or to discover their innate potential. Binet believed strongly that intelligence is not a single thing, that it is not scalable like height, and that it is too complex to capture with a single number. He viewed the number derived from the tests adminstered (chronological age minus mental age, or intellectual level) as a rough guide rather than a defining characteristic of any real thing. He was strongly opposed to indelible labeling because of his concern for the self-fulfilling prophecy carried by labels.

Neither was Binet's goal to limit students. Rather, he viewed his mental tests as a means for enhancing students' potential through proper education. He opposed sorting children and training them according to their supposedly inherited intellectual level or channeling them into professions appropriate for their biology (Binet, 1909).

Binet was careful not to speculate about the causes of students' poor performance and used his measure only to identify those whose poor performance indicated a need for special help. He believed that special education must be tailored to the individual needs of the disadvantaged student. He argued that educators must adapt to those students' needs to help them learn how to learn. He further argued that students who received special help through what he called "mental orthopedics" increased both their knowledge *and their intelligence*, thereby showing that intelligence can be augmented by a good education. Clearly, Binet (1909) did not believe that intelligence was an inborn and fixed quality, inaccessible to experience, learning, or teaching.

Unfortunately, those who followed Binet were not as careful in their approach to mental testing. As Gould (1981) points out, those who capitalized on Binet's work were quick to put the concept of intelligence to use for their own ends, primarily to argue for the existence of an innate potential for being smart which some people have (primarily white

males) and others do not (primarily women, non-Western Europeans, and those with darker skin). The first American to bring Binet's scale to this country after Binet's death in 1911 was H. H. Goddard, who used it as a mental deficiency scale to identify intelligence as a single entity — exactly what Binet had cautioned against. Goddard (1919) assumed everything about intelligence was inborn and inherited, and he expanded the concept of intelligence to include everything humans do, including moral behavior and religious beliefs. As proof, he argued that criminals, alcoholics, and prostitutes were morons, having a mental age between 8 and 12 years on the scale.

Goddard (1919) wanted to establish democracy as a way of governing through the selection of the wisest, most intelligent, and the most human to tell the public what to do to be happy. He further argued that intelligence is governed by a single gene and called for the sterilization of the feeble-minded. He was so convinced of his views that he trained two assistants (female, because he believed they possessed superior intuition) to pick out by sight feeble-minded subjects for a study. In his later years, Goddard (1928) modified his beliefs to accord with the changing social beliefs that were prevalent then, admitting that perhaps some of the "feeble-minded" could be taught to lead useful lives.

Although Goddard introduced Binet's scale to America, Lewis Terman from Stanford University became its best known champion. In a 1916 revision, Terman created the Stanford-Binet, the standard IQ test and model for virtually all IQ tests thereafter. In addition, he renamed Stern's Mental Quotient (which was borrowed from Binet's intellectual level and calculated the same way), calling it the Intelligence Quotient or IQ, thus beginning the tradition of labeling the results of mental measurement in terms of an intelligence score (Sattler, 1988). Terman's version was used to rank everyone by IQ, which stressed conformity with social expectation and repression of original response. Terman believed that class boundaries are set by innate intelligence. He remained remarkably insensitive to the influences of the environment until his 1937 version, when he became virtually silent about the role of heredity (Terman & Merill, 1937).

Terman's scale (1916) was mass-marketed and contributed to the development (along with Yerkes' tests — see below) of the multimillion-dollar testing industry that exists today. Terman's scale was based on his persuasive arguments that intelligence is inevitable, that immorality arises from lack of intelligence, and that all feeble-minded people are potential criminals and every feeble-minded woman is a potential prostitute.

Along with Terman's Stanford-Binet scale, the work of R. M. Yerkes helped bolster the wholesale use of the IQ test with large segments of the

population. In addition, Yerkes believed that the age-scale format used by Binet and Terman was inferior to the point-scale format. Unlike the age-scale format, the point-scale format assigns points on the basis of the correctness and quality of the person's responses. Thus, in theory, the same aspects of behavior can be measured at every age, and the points accrued by each person during the test can be converted into scores that can be compared with those of other people of different ages.

Yerkes' tests were developed specifically for use during World War I, when 1.75 million men were tested. Enamored with rigor and science, which he equated with numbers and quantification (Gould, 1981), Yerkes devised the first mass-produced written tests of intelligence. Schools and businesses became interested, and Binet's original purpose for using mental testing was circumvented. With Yerkes' test, people could now be ranked and tracked according to their scores, their futures virtually cemented by their performance on the test. The results of this massive use of intelligence testing rocked social policy for many years, particularly as Yerkes' data purported to show that:

- the average mental age of white American men stood at 13;
- European immigrants could be graded by their country of origin, purportedly showing that different racial and ethnic strains were less intelligent than others;
- The average man from most European nations was a moron according to the test;
- darker people and Slavs had less intelligence than fair people; and
- the Negro lay at the bottom of the scale (Yerkes, 1921).

These findings were later used to restrict immigration into the United States in the Immigration Restriction Act of 1924 (Gould, 1981).

Yerkes (1921) was adamantly opposed to explanations for his findings that included any mention of environmental influences, such as level of education, exposure to American traditions and social practices (which were reflected on the tests), or ability to read and write, let alone follow the directions given to take the test.

Gould (1981) provides a noteworthy critique of the Army Mental Tests developed by Yerkes. In a careful analysis, Gould concludes that the tests assess literacy, which reflects education more than any other factor. In addition, Gould records how the testing conditions during the 1.75 million administrations during World War I were appallingly variable, often not following Yerkes' procedures at all. Although there were different versions of the test (an Alpha version and a Beta version), the

standards governing which recruits received which version were continually compromised, often varying significantly from one army camp to another.

In a careful scrutiny and analysis of both versions of the test, Gould (1981) shows that the Beta version cannot be considered a measure of intelligence at all, as it required understanding of American commercial products or sports stars many recruits had never encountered, the time required to finish was impossibly short, and the examiner's instructions were confusing. Gould goes on to show that Yerkes' results reflect a strong correlation between increased test scores and time spent in schools, yet Yerkes refused to acknowledge the correlation, invoking instead a causal explanation, saying that men with more innate intelligence spent more time in school.

Intelligence as a Function of Statistics

Although the concept of intelligence as an inborn and fixed quality had been brought to the United States by others, it was Charles Spearman's mathematical manipulations of the scores themselves that solidified intelligence as a "real" entity. For the first half of this century, Spearman's statistical work with scores from intelligence tests reverberated throughout schools, universities, businesses, and social and political institutions. Spearman's work was responsible for providing the impetus for rendering intelligence a real object, measurable through the IQ test. His procedure was factor analysis, a method for showing how relationships (correlations) among many dimensions, test scores for example, can be simplified into a kind of average correlation, a *factor.* Factor analysis mathematically reduces a complex system of correlations into fewer dimensions. Because it is a mathematical procedure, factor analysis reflects a mathematical abstraction, not a physical entity. However, Spearman used it to reduce the test scores resulting from the Stanford-Binet into two aspects of intelligence, the *g* factor, standing for general intelligence, and the *s* factors, for specific factors of intelligence. In the case of the IQ test, the *g* factor coincides with one factor, the IQ score. In one bold stroke, Spearman took a mathematical abstraction and labeled it the IQ, thus rendering intelligence real solely on the basis of mathematical reductions of numeric information (Spearman, 1904).

Gould (1981) presents a deft description of factor analysis, showing it to be an invention made in a social context rather than a product of pure deductive mathematics. He cautions us to remember, as Spearman did not, that factor analysis, because it is based on correlation, shows

only relationship, not causation. One cannot, therefore, conclude on the basis of the generation of a single number, the IQ score, that this number or factor constitutes a real thing that "causes" the factor to emerge. Gould goes on to say that factor analysis "is a brutally empirical technique, used when a discipline has no firmly established principles, but only a mass of crude data, and a hope that patterns of correlation might provide suggestions for further and more fruitful lines of inquiry" (p. 316). In other words, just because there is a mathematical pattern does not mean there is any *thing* it is representing. What it represents is an idea derived solely from the mathematical pattern and not from behavior, biology, human events or relationships.

Gould (1981) describes the absurdity of Spearman's calling the factor he derived through factor analysis the *g* factor, for general intelligence. Gould says:

> A factor analysis for a five-by-five correlation matrix of my age, the population of Mexico, the price of swiss cheese, my pet turtle's weight, and the average distance between galaxies during the past ten years will yield a strong first principal component [strong factor]. (p. 250)

This factor will have no physical meaning whatever, though this procedure reflects exactly what Spearman followed with intelligence. On the other hand, if you do a factor analysis of the length of various parts of the anatomy of a growing body, you will find a strong factor that could be said to be correlated with growth. Spearman's labeling the *g* factor intelligence reified it as a physical entity. Gould (1981) reports that Spearman later recognized that a mathematical abstraction need not correspond with a physical reality, but by then (the 1950s) the damage was done. Intelligence had become a real thing, measurable by the IQ test.

To illustrate the fallacy of using the mathematical manipulations involved in factor analysis to make intelligence something real, Gould relates how another psychologist, L. L. Thurstone, took Spearman's own data, reworked it, and came to conclusions directly opposite to Spearman's (Gould, 1981). Thurstone's factor analysis yielded not one factor, but seven, which he then labeled Primary Mental Abilities (PMAs): V = verbal comprehension, W = word fluency, N = number (computational), S = spatial visualization, M = associative memory, P = perceptual speed, and R = reasoning (Thurstone, 1938).

Thurstone argued that these factors, the PMAs, showed that there is not one general intelligence, but rather that some people are good at some things, while others are good at other things. He lobbied against the use of a single number to represent a child's intelligence. He wanted

to assess each child individually, believing that the essence of each child was his [sic] intelligibility. He was interested in discovering each child's strengths and weaknesses. Thurstone's idea of numerous primary abilities was extended by Guilford (1956), who, using factor analysis, proposed 120 primary mental abilities.

What factor analysis shows is that the same data can be manipulated in numerous ways, often resulting in conflicting explanations for the same behavior as reflected by test scores. The problem arises in proposing that any of these explanations can be said to represent "reality," when another, opposite, representation can be derived using exactly the same data. Perhaps, as Gould (1981) points out, both explanations are false because they rest on the assumption that the primary abilities, the mathematical factors, are real, when in fact no correlation has ever been found between any biological or neurological object and a factor, thereby demonstrating that factor analysis reflects only possible conceptual explanations, not descriptions of real objects or things.

In spite of the tenuous nature of factor analysis as a method for establishing the reality of an abstract concept such as intelligence, it continues to be invoked. A recent indication of the damage caused by the equating of factor analysis with a real object is Arthur Jensen's recycling of Spearman's *g* factor (Jensen, 1969). Jensen, a fervent believer in the innateness of intelligence, proposed ranking every living creature according to its degree of possession of *g*. He would rank the amoebae at the bottom of the scale and extraterrestrial intelligences at the top. He viewed evolution as the unfolding of more and more amounts of *g*, showing a remarkable failure to understand how different species are related, which are related and which are not, and, most important, what constitutes complexity and complication in life forms (Gould, 1981). His most astounding conclusion, however, was not about nonhuman life forms. It was his fervid argument that blacks were somehow "lower" than whites because they possessed less *g* than whites. In other words, he believed that the difference in IQ between blacks and whites is caused by an innate deficiency in intelligence in blacks.

Intelligence Represented by the IQ Test

For over almost a century, psychologists have accepted the idea that intelligence, an abstract entity, is reflected in people's ability to learn, to solve problems, and to think abstractly. Further, they have accepted the idea that intelligence is reflected in a person's scores on an intelligence test, which is typically an instrument designed to sample our perfor-

mance on a variety of tasks such as vocabulary, comprehension of social conventions, repetition of series of numbers, arithmetic concepts, picture puzzles, and visual pattern manipulation.

The IQ score has come to represent a person's intelligence. Thus, intelligence has come to be seen as virtually the same as the IQ score, particularly for those outside the field of psychology. Within psychology, many practitioners are careful to separate test performance from the abstract concept of intelligence. However, most nonpsychologists are not aware of the subtle (yet profound) difference between the abstract idea of intelligence and the IQ score. To the majority of ordinary people in the world, the IQ score is accepted as a reflection of our intelligence, and our lives are dramatically affected. However, because intelligence and achievement tests rely on numeric data to express a person's supposed capacity or knowledge, they are limited in the information they can convey. To understand the sorts of information yielded by intelligence and achievement tests, it is necessary to answer the question: Why do tests measure what they do?

WHY DO TESTS MEASURE WHAT THEY DO?

Examining how tests are constructed, their statistical properties, and the meanings of the various types of scores yielded affords an opportunity to understand how we have come to substitute "normal" for "average," "below normal" for "below average," and "above normal" for "above average." Through our understanding we recognize that this referential switch reflects a significant semantic exchange, one rooted in an acceptance, albeit sometimes unwitting, that some people are normal in their learning, while others are not. To deepen our understanding, I want to dig further.

Here I will examine the assumptions and beliefs that are often hidden from our view when we consider standardized tests and their results. I propose to probe into the conceptualization and design of standardized tests to look carefully at the fundamental underlying assumptions. The ones we will look at are:

- deciding on the variable(s) to measure: What concepts or ideas do the variables reflect? How "real" or valid are concepts such as "intelligence," "memory," "perception," "language processing," and so on?

- developing the procedures used to administer the measure: Are there cultural or gender-based assumptions underlying (1) what is considered appropriate test-taking behavior and (2) how the testee is expected to display her knowledge?
- designing the test format: Are the materials and environment conducive to obtaining a representative sample of behavior from the person being tested? Do the test procedures (e.g., essay, multiple-choice, short-answer) favor any particular group?
- selecting items to measure: Do they reflect what the author assumes is the construct being measured?

In the following sections, I examine each of these questions in more detail. Because most professionals are familiar with intelligence tests, I use them as illustration.

Deciding on the Variable(s) to Measure

As I pointed out earlier, intelligence tests emerged in the United States following the importation of Alfred Binet's tasks, which were designed to identify students having difficulty learning the curriculum in the Parisian schools at the turn of the century. Most of the intelligence tests in current use hark back, at least in part, to these tasks. Most of the instruments in current use are based on the assumption that intelligence, whether it is considered a general ability or a set of specific abilities (or both), is an inborn quality (i.e., free of cultural and social impediments) that can be quantified — an assumption not shared by a number of psychologists and educators (see, for example, Gardner, 1983; Gee, 1989; Langer, 1987).

Arguably, the two most familiar instruments designed to quantify intelligence are the Stanford-Binet (4th edition, revised in 1986), and the Wechsler scales: the Wechsler Adult Intelligence Scale — Revised (WAIS-R), the Wechsler Intelligence Scale for Children — Revised (WISC-R), and the Wechsler Preschool and Primary Scale of Intelligence (WPPSI). Each of these instruments is based on the concept that intelligence, an assumed real entity, is organized in different levels.

Underlying the most recent edition of the Stanford-Binet (the 4th edition) is the assumption that intelligence is hierarchically arranged in three layers (Thorndike, Hagen, & Sattler, 1986). The first layer is general intelligence (reminiscent of Spearman's *g* factor described above) and encompasses information-processing skills, planning and organizing abilities, and reasoning and adaptation skills. Layer two contains what

the authors call "crystallized abilities," or scholastic or academic abilities, as well as "fluid-analytic abilities," which consist of nonlanguage abilities. Layer three is comprised of short-term memory. To assess these assumed hierarchically arranged components of intelligence, the Stanford-Binet (4th Edition) contains 15 subtests. Many of the subtests, especially vocabulary, comprehension, absurdities, verbal relations, pattern analysis, paper folding and cutting, memory for sentences, memory for digits, and memory for objects require considerable familiarity with these sorts of tasks, as well as knowledge of how to display what one knows in the manner demanded by these subtests. For instance, the comprehension subtest asks questions regarding social judgment (e.g., "Why should people be quiet in a hospital?") which may be specific to certain cultural groups and economic circumstances.

To illustrate the concepts underpinning the Wechsler scales, I will focus on the Wechsler Intelligence Scale for Children — Revised, known as the WISC-R. The WISC-R is based on the idea that intelligence comprises a general factor, reflected in the Full Scale IQ score, as well as two more specific aspects of intelligence, reflected in the Verbal IQ and the Performance IQ scores. The original WISC was developed as a downward modification of the WAIS in 1949. It was constructed by adding easier items at the begining of the subtests. Thus, the children's version of the scale was modeled after the adult version. In 1974, the revised edition of the WISC, the WISC-R, was published. Little conceptual modification was made of the original model of intelligence used to design the scale for adults in 1939.

The WISC-R contains 12 subtests: 6 that are considered to assess verbal abilities and 6 considered to assess performance abilities. Verbal abilities are thought to include those processes involving linguistic thinking, while performance abilities are believed to include nonlinguistic thinking. Though it purports to assess an individual's potential for learning, coping, and problem-solving, the WISC-R, like the Stanford-Binet, taps into knowledge and ways of thinking colored by cultural, economic, and educational variables. For instance, the information subtest contains 30 questions sampling a broad range of knowledge, including names, dates, historical and geographical facts, and so on. Students' experiences and educational history play a great role in their ability to respond to the questions.

Similarly, the vocabulary subtest contains 32 words arranged in order of increasing difficulty. The child is to provide an oral explanation of the meaning of each word. Answers are graded according to level of abstractness. Thus, in response to the question, "What is a nuisance?", the child who answers with an example receives no credit, while the

child providing an abstract answer such as, "A pain in the neck," receives 2 points. Again, children's linguistic experience with and cultural expectations regarding talking about words will shape their responses. Other things being equal, children from cultures that place low value on talking about language as an object will receive fewer points for their responses, while children from cultures valuing such talk will receive higher points.

Developing the Procedures Used to Administer the Measure

The essential question underlying the administration of the test instrument is: How is the testee expected to display her knowledge? In other words: What is considered appropriate test-taking behavior?

Displaying one's knowledge is an elementary assumption of standardized tests. The testee is expected to respond in ways that allow the examiner to score, or in less frequent instances, judge the responses against those given by the normative population during the process of developing the instrument. In other words, the test is designed so that the person taking the test can show what she knows in certain ways. For instance, on the vocabulary subtest of the Stanford-Binet, Fourth Edition, the testee is given two tasks. In the first, she is shown pictures of words and asked to identify each, while in the second, she is expected to define words of increasing difficulty. On the comprehension subtest of the WISC-R, the testee is asked questions dealing with problem situations in the areas of one's own body, interpersonal relationships, and social attitudes and beliefs.

These two instruments favor the testee who is familiar with the procedure: The examiner asks a question or gives an instruction about some bit of knowledge or ability, and the testee responds with a presentation of what she knows, preferably in detail. The situation is far removed from most everyday activities — most of us are not asked to define words on a daily basis (Stanford-Binet vocabulary subtest), let alone answer questions such as, "Why is it important for the government to hire people to inspect the meat in meat-packing plants?" (WISC-R comprehension subtest). Even less likely is that we would be asked to repeat a series of nonmeaningful numbers forward and then backward (digit span on the WISC-R; memory for digits on the Stanford-Binet), or repeat sentences verbatim (Stanford-Binet memory for sentences subtest).

For persons unfamiliar with this particular format for displaying knowledge, these tests present a puzzle. Imagine being brought into a sparsely furnished room, seated across a table from a stranger who lays out a set of strange-looking paraphernalia, and asked to engage in a

behavior that to you seems invasive, out of place, arrogant, or worse, disrespectful. Imagine further that you have had little contact with the types of questions asked or with the materials you are asked to manipulate. In such an unfamiliar context, your responses might be brief, to the point, and guarded — to the extent that you can respond at all.

The concept of displaying one's knowledge is not universally accepted. In some cultural groups, people refrain from any overt display, as such behavior is deemed unseemly and distasteful. Too, in other cultures, men display knowledge differently from women, who are frequently expected to know less and to show it only in a deferential fashion. Often, children are presumed to defer to their elders, who view knowledge display by children as distasteful or offensive.

What is appropriate test-taking behavior becomes an issue when a testee responds in ways the examiner does not expect, condone, or value. What is appropriate depends on the test authors' assumptions about how the testee should display knowledge. Both the Stanford-Binet and the WISC-R are organized so that the person being assessed is expected to sit quietly until told by the examiner to talk; to respond in just the manner described by the examiner; to deliver responses unrelated to the immediate context of being in a particular sort of relationship with the examiner; to interact with a large and varied set of materials, themselves removed from the context of the person's everyday life; to overcome, even hide, fatigue and boredom; and to cooperate with the examiner. The examinee is *not* expected to talk out of turn; develop a narrative about an important event or person; to move from her seat until given permission by the examiner; to ask questions about the materials; to ask how she is doing; to ask for right answers or help in finding an answer; to remain silent; to cry; to ask to leave; to refuse to cooperate.

Thus, appropriate test-taking behavior is special; it is different from other behavior. It is behavior that is learned by children largely in the specific circumstances surrounding the experience of talking with family members in particular ways. These ways of talking include a family member asking the child to report on her activities — what she learned in preschool or the babysitter's; what she did during the day; who she played with; what she had for lunch and snack, and so on. Implicit in these conversations is the display of knowledge, as well as a description of that knowledge in an organized, coherent way. These conversations serve as a precursor to the question-answer format of talking characteristic of classroom teacher-student interactions. This question-answer format is itself a test format: The teacher asks the student a question, and the student is expected to display her knowledge about it through responding in a manner circumscribed in advance by the teacher. Much of the

schooling process reflects this testing format of interaction, and most children who are successful in school are adept at it.

The point here is that what is considered appropriate in taking tests and displaying knowledge is assumed by test authors and examiners to be known and practiced by all the people to whom they administer intelligence tests. Those who are not are frequently punished either through the scoring system or through observational comments couched in negative terms describing "inappropriate" behavior, such as "inability to attend," "impulsive," "hyperactive," "refused to cooperate," and so on.

Designing the Test Format

The questions underlying test format are, first, Are the test materials and testing environment conducive to obtaining a representative sample of behavior from the person being tested? and, second, what *is* representative behavior? To address the first question, we must begin with an understanding of representative behavior.

The purpose of testing is to sample behavior that represents, or stands for, some presumed knowledge, set of abilities, or aptitude. In the case of intelligence tests, the examinee's responses to the items posed by the examiner are believed to stand for her potential for problem-solving and learning. Thus, repeating sequences of numbers in order, defining words, describing how concepts or things are similar, arranging visual puzzles, replicating geometric designs, and so on, are viewed as representing the examinee's intelligence. In addition, even though the examinee is seen only once or twice by the examiner in an environment removed from the person's own familiar surroundings, and even though she is given a set of problems different in quality and quantity from those she encounters in her everyday life, her responses are deemed representative of her intelligence. The examiner could conceivably see a person for 2 hours, administer the test instrument, and conclude that the results accurately reflect the examinee's potential for problem-solving and learning in general — in other words, her intelligence.

As presently constituted, the most frequently used intelligence tests, the WISC-R and the Stanford-Binet, are assumed to measure samples of behavior representative of people's general intelligence, that is, their abilities to solve problems and to learn. Those who use these tests interpret their results in generalizable terms, often concluding that a particular person has a diminished capacity to learn, or has difficulty processing verbal information, or has difficulty comprehending abstract material solely on the basis of the items on the test instruments them-

selves, as administered in a setting removed from the examinee's ongoing life, and on the basis of a few hours' interaction, at best.

The testing process (including the interactions between examiner and the person being assessed, the materials used during the administration of the test instrument, the information conveyed to the examinee about her performance, and the setting in which the testing occurs) is intended to sample behaviors believed to be related to the universe of behaviors the test was designed to sample. The process of testing intelligence, then, rests on gathering a sample of behaviors from all the possible behaviors one could call intelligent. The testing process is geared toward honing in on specific aspects of intelligence.

However intelligence is conceived, whether as abstract thinking, the capacity to acquire knowledge, and problem-solving (Snyderman & Rothman, 1987), as a rational and purposeful way of thinking and dealing with the environment (Wechsler, 1958), or even as what the intelligence tests test (Boring, 1950), the tests designed to measure it must include procedures and materials that will solicit from the examinee behaviors that reflect the basic conceptualization. If we accept Wechsler's conception of intelligence, for example, we expect the Wechsler scales to include materials and procedures that allow the examinee to demonstrate her ability to think rationally and purposefully and to deal with the environment. However, on examination, the WISC-R, for instance, appears to include items that do not seem closely related to the basic concept of intelligence. Some items do not seem well designed to represent rational thinking or dealing with the environment. Repeating digits forward and backward does not seem to be representative of any types of rational thinking or environmental dealings most people face in their lives. Neither does solving arithmetic problems orally without paper, pencil, or calculator. Neither does defining words.

Although some claim that intelligence tests should not be expected to be indicators of everyday functioning (Sattler, 1988), just what should they indicate? When an examinee receives a low score on one of the intelligence tests and is described as significantly impaired in learning capacity but is able to work productively in the community and live independently, the question must be asked, What exactly do the behaviors sampled by the test represent? More important, What do we *want* them to represent? What does repeating digits backward represent? Defining words? Assembling puzzles? Replicating geometric images? Exactly what are we interested in discovering by giving an intelligence test in the first place? The question of representative behavior shows us clearly that what we measure with the typical intelligence test may not represent behaviors, thoughts, knowledge, or aptitudes that help us function in our everyday lives.

Selecting Items to Measure

As I pointed out above, both the Stanford-Binet and the WISC-R are based on the idea of intelligence as a real entity, that is, as an aptitude for learning and problem-solving. While it is virtually impossible to construct any psychological test that is completely independent of social and cultural influences, the validity and effectiveness of the instruments rest on their capability to make assessments that are unbiased with regard to social and cultural factors.

Because intelligence tests, along with other standardized tests, are currently used to place students in special education classes, they must be unbiased with regard to cultural background, economic circumstance, age, as well as gender. Though there is strong evidence showing that both the WISC-R and the Stanford-Binet (4th Edition) are unbiased with regard to age, the evidence is not so clear for the other factors, such as ethnic and racial background. Because standardized tests in general, and intelligence tests in particular, are used as the basis for making special education placement decisions, they must be scrutinized to determine the presence of any sources of systematic bias that would result in certain groups receiving lower scores than others. If certain groups of people are overrepresented in classes for the mentally retarded, for example, it is critical to examine possible sources for the overrepresentation. Intelligence tests are likely candidates.

It is instructive to note that California has banned the use of individually administered intelligence tests to any black student referred for special education services (Sattler, 1988). In a case that began in 1979, *Larry P. v. Riles*, the court found that intelligence tests are both racially and culturally biased (Sattler, 1988). Although there have been other cases in which intelligence tests have been found not to discriminate against minority children, the fact that there are many such cases, many of them reaching the federal court level, indicates that there is significant concern about exactly what we call intelligence and how we measure it.

THE CONSEQUENCES OF MAKING INTELLIGENCE REAL

During the last half of this century, the legacy of the reification of intelligence, its testing, and the development of derivative measures of mental abilities (such as achievement and aptitude tests, including language development) has extended into many areas of the culture, most particu-

larly the schools. In 1939, David Wechsler developed a point scale that was the forerunner of the Wechsler Intelligence Scale for Children — Revised (WISC-R). As I mentioned earlier, the WISC-R, along with the Stanford-Binet, is the most widely used intelligence test in the schools today. The tasks Wechsler chose for his scale were drawn from existing tests (Yerkes' army tests, the Stanford-Binet, the Healy Picture Completion Tests, and the Kohs Block Design test) and reflected his desire to focus on the global nature of intelligence rather than on any primary mental abilities or specific factors. Half of the WISC-R subtests are presumed to assess what have become known as verbal, that is, language-based, abilities, and the other half purportedly measure performance, or non-language-based abilities.

Though the Stanford-Binet and the WISC-R are the most widely recognized and used in school settings, several other test batteries have been developed to assess intelligence or mental abilities in children and adults. Among these are the Kaufman Assessment Battery for Children, called the K-ABC, (Kaufman & Kaufman, 1983), the Slosson Intelligence Test, known as the SIT (Slosson, 1983), the Detroit Tests of Learning Aptitude-3 (Hammill, 1991), the Extended Merrill-Palmer Scale (Ball, Merrifield, & Stott, 1978), the Leiter International Performance Scale (Leiter, 1948), the McCarthy Scales of Children's Abilities (McCarthy, 1972), the Raven's Progressive Matrices (Raven, 1938), the Hiskey-Nebraska Test of Learning Aptitude (Hiskey, 1966), and the Goodenough-Harris Drawing Test (Harris, 1963). In addition, there are numerous scales used for assessing infants and preschool children.

In addition to the proliferation of intelligence tests in use today, achievement tests have become institutionalized in schools. Although psychologists argue that intelligence tests and achievement tests are different, Sattler (one of the authors of the 4th edition of the Stanford-Binet) states, "Tests of intelligence, achievement, ability, or aptitude are, for the most part, measuring similar abilities; the names merely reflect the aspect that has been selected for investigation. All ability tests measure what the examinee has learned" (1988, p. 45). In another discussion of the similarities and differences between intelligence and achievement tests, Sattler argues that they are measuring different aspects of thinking. He states that intelligence tests assess learning in life experiences, while achievement tests measure school learning, thus making achievement tests more culture bound and specific than intelligence tests (1988, p. 73). However, in describing their similarities, he states that both intelligence and achievement tests sample aptitude, learning, and achievement to some degree. Thus, his conclusion is that they measure the same aspects to differing degrees — a fine distinction

to the person taking the tests and whose school and adult careers hinge on the resultant scores.

Same or different, intelligence tests and achievement tests proliferate in today's school culture. For students whose learning, aptitude, and achievement have been determined to be "normal," their experiences will include the ubiquitous achievement test. For students whose learning, aptitude, and achievement are deemed "abnormal," their lives will be filled with individualized tests, often including the intelligence test, along with specialized measures of learning, language, reading, writing, reasoning, problem solving, awareness of speech sounds, and so on.

In short, testing is big business in the schools, and students' futures ride on their test performances and resulting scores. They are compared with their peers within their classroom and school, with students from other school districts, with children from other cities or towns, with students from other parts of the state or country, and, in the American quest to be best in everything we do, with students from other countries. An example can be seen in a recent *New York Times* article titled "Report Says U.S. Should Use Science Money for Education," in which it was stated that President Bush and the nation's governors in 1989 had agreed that one of the six major education goals for the country was "to position American students to rank first in the world in math and science."

In some states, test scores determine not only students' futures, but their teachers' as well. In Pennsylvania and Maryland, to name only two, mandated statewide testing resulted in a narrowing of the curriculum, reduced teacher motivation and morale, and reduced collegial interactions among teachers (Corbett & Wilson, 1990). With increased pressure on teachers for their students to achieve high scores on these tests, the obvious solution for most teachers is to teach their students how to take tests, how to perform well, and how to obtain above-average scores (Corbett & Wilson, 1990). In these situations, the classroom turns into a test laboratory where activities are geared to the upcoming test instrument. Learning takes place in test-sized bits. Information is imparted in unrelated and often irrelevant chunks. Discovery, creativity, and exploration are shunted aside with the argument that they take too much time, their results are not immediately obvious, and, besides, the achievement tests are coming up next week or next month (Fullan, 1990).

Consequences for Schoolchildren and Their Families

The Western desire to be best at everything and measuring our progress in that quest has resulted in three profound consequences for school-

children and their families. The first is that tests abound in schoolchildren's lives. In a typical school, children are given group placement tests during the first week of school to determine which curricular program they will be placed in for reading and math, among others. At the conclusion of each unit, each child takes another test to determine whether she will be moved to the next level in the series. In addition, at least during the elementary years, students take a spelling test each week, often preceded by a practice test 1 or 2 days prior to the "real" test.

For many teachers, homework is used as a test. Teachers mark the homework, not in terms of whether the child has learned the concept or facts, but to determine how many the child has gotten right. Thus, the students' homework is used to test competence or knowledge. For children in schools receiving Chapter I funds, achievement tests such as the Iowa Tests of Basic Skills (Hieronymous, Lindquist, & Hoover, 1982) or the California Achievement Tests (CTB/McGraw Hill, 1978) are taken each year. For children in schools not receiving Chapter I funding, these achievement tests are administered every other year instead. The tests often extend over several days and often are given extensive preparation time and high priority in teachers' attempts to prepare their students for the tests.

Some states (e.g., New Mexico) have instituted their own competency examinations, often assessing students at the end of the fourth and seventh grades in writing, reading, and mathematics. Texas, for example, has developed the Texas Assessment of Academic Skills (TAAS) to assess students' knowledge of academics at the end of grades 3, 5, 7, 9, and 11 (Texas Education Agency, 1990). The TAAS, which assesses student achievement in reading, writing, and mathematics, will be administered through 1995, at which time its effectiveness will be evaluated.

One of the results of the widespread and frequent use of tests is a pervasive dependence on the use of numbers and scores to represent people. Students in school are labeled and categorized according to their test scores. They are often placed in special programs solely on the basis of their performance on tests with which they may be unfamiliar or of which they are afraid. Adults in production jobs are judged on the numbers of products made or sold, with quality often a byproduct of quantification. Statistics are compiled, analyzed, and manipulated. Results are reported without regard for the contexts surrounding the collection of the numbers, the individual, and even collective circumstances of the people whose efforts are being counted. In short, the emphasis is on quantity, not quality.

The second consequence of the emphasis on performance is that concepts such as intelligence, aptitude, and achievement have become not only accepted but institutionalized. In addition, new categories have

been devised to label people whose performance in these areas of testing falls outside the bounds of what is considered normal. These labels, like intelligence, often represent, not real objects or processes, but hypothetical ideas or concepts. For instance, the term *learning disability* has been devised to describe a person whose abilities are uneven across tests and school-related activities. This seems a classic case of creating a label to fit an artifact of testing and teaching. Why not label the condition, if one must find a condition in the first place, *teaching-deprived* or *teacher disability*? Why put the problem in the student in the first place? For that matter, why assume that any person whose test performance is divergent from that of peers must be disabled? I will return to these questions in Chapter 2.

The third consequence of the emphasis on performance has been the large numbers of people affected by labeling. Because their test performance or behavior diverges from that of their peers, they are tagged with labels such as "disabled," "disordered," "handicapped," or "impaired." This labeling assumes there is a "normal" way for everyone to learn and perform and that all human learning proceeds in the same fashion. Though I know few managers, teachers, or instructors who would agree with the truth of this assumption, our behavior in testing and labeling belies our denial. Even though most teachers would attest to a belief in individual differences among students, the conditions under which they teach often mitigate against their addressing individual students. Instead, most teachers teach in systems addressing the average and above average student, as measured by the various test instruments used in each district. Few regular classrooms are organized to accommodate students who deviate significantly in their learning. As a result, those students who do differ are frequently referred for special testing and placement in special education settings, either for the gifted (a small number) or in remedial programs (a much larger number — somewhere in the range of 4.5 million children).

The students placed in remedial programs are usually labeled according to the program in which they are placed, for instance, learning disabled, speech impaired, communicatively handicapped, dyslexic, reading impaired, and so on. These labels have become entrenched in the culture of school largely because of the passage of Public Law 94-142 in 1975. In the rules and regulations accompanying P.L. 94-142, schools are instructed to count the number of children under their jurisdiction who fall under the categories of handicapping conditions. Each school receives federal funding for each child shown to manifest each of these handicapping conditions.

Although there are exceptions (Hoffman, 1990), most educators have used the labels for the handicapping conditions to title the pro-

grams they developed following the P.L. 94-142 regulations, and the children enrolled in those programs are typically assigned the same label. As a result, students enrolled, for example, in a special program for learning disabilities assume the label "learning disabled," often carrying that label not only through their school career but into their adult lives as well. I address this issue in Chapter 3, where I examine the implications of a deficit approach to human learning and knowledge.

In this chapter I have described how intelligence became accepted as a real concept, how intelligence tests evolved, and some of the difficulties associated with the processes of measurement and the interpretation of test results. I mentioned some of the common misconceptions about testing, and I described several assumptions and beliefs that, while often hidden from view, guide the design and practice of the measurement process.

In the next chapter, I turn our scrutiny to the concept of learning disabilities. Like intelligence, the concept of learning disabilities arose out of a specific set of social and political issues, in this case the conditions following the end of World War II.

Another Modern Fable: Learning Disabilities Become Real

As I pointed out in Chapter 1, one of the principal outcomes of making intelligence real has been to categorize and rank people on the basis of a test or tests purporting to assess mental abilities. Often the interpretation of test scores has been used to reinforce social prejudices such as the belief that those with specific biological characteristics are inferior to others showing supposedly normal characteristics. I pointed out that psychologists called on their scientific training to buttress the prevailing prejudices of the day, often concluding that their findings supported the collective wisdom then in vogue even though contradictory conclusions could be drawn from the same evidence.

As I researched the material showing how the modern conceptualization of intelligence evolved, I was struck by what appeared to be a parallel pattern of emergence and development for the concept of learning disabilities. My awareness of the parallels between the two concepts had developed over a period of 23 years. Following my stint as a junior high school English teacher, I had returned to graduate school to study language development and linguistics. Along the way, I received a master's degree in speech pathology with an emphasis on language acquisi-

tion, and, later, a Ph.D. in language acquisition, language disorders, and learning disabilities. In my professional work, I focused on children and adolescents who, by the middle of the 1970s, were labeled learning disabled, or, more recently, language-learning disabled. Like most professionals I knew and worked with, I used the learning disability designation as a way to receive the funding necessary to develop programs for my clients. I focused on providing service, and I used the channels available to me to obtain funding. Most of us accepted the learning disability label with relief because we could finally describe the characteristics of the students we worked with. We had a category to use when talking about our clients and when developing materials, methods, and programs. In short, we finally had a coherent story to explain what had previously been troublesome to understand.

By the early 1980s, however, many of us had become uneasy with the pervasiveness of the labels associated with students exhibiting the characteristics identified as learning disabled. The labels, once attached, were sticky and, like the story in which they were embedded, took on a life of their own. Soon our vocabulary showed the insidious nature of categorizing and labeling on the basis of a disability: We began to refer to these students as *being* learning disabled. Through this referential process, we inferred that these students *were* disabled. We no longer saw them as *having* characteristics of a disorder; we viewed them as *being* disordered. Their beings, as manifest in their central nervous systems, were seen as disordered. We saw these students, whom we called "learning disabled students," as being the source of the condition we call learning disability. From this perspective, we focused our therapeutic interventions on remediating their supposedly inherent flaws. Though we might not have said it out loud, we blamed students if they did not get better, or if they did not catch up with their peers. The more different these students were from their "normal" peers, the more disabled, handicapped, or impaired we believed they were.

How did learning disability become a real entity residing in our students' central nervous systems, and how did we professionals acquire our beliefs and attitudes toward learning disabilities? The story is similar to the one I related in Chapter 1 about intelligence. Like the story of intelligence, it is instructive in revealing how readily we accept ideas as real and how quickly we generalize from abstract concepts to the lives of real people.

HOW LEARNING DISABILITIES GOT REAL

Learning disability is a relatively modern concept. The term was first used in the middle part of the century to designate people who failed to learn

specific parts of the school curriculum (Kirk & Kirk, 1971; McCarthy & McCarthy, 1969; Meyers & Hammill, 1969). Rooted in school failure, it is linked with the specific learning conditions inherent in school settings. Accepted as a real condition, learning disability is used as a label to categorize children, develop educational policy, and design educational programs.

Like intelligence, learning disability is a concept, an idea. It is based on the assumption that children who do not learn like their peers and yet who are normal in every *measurable* way — intelligence, hearing, vision, family background — must be biologically impaired, possessed of a minimal neurological dysfunction that causes their inability to learn in certain school situations. Also like intelligence, learning disability is a concept with widespread implications because the tens of thousands of students who are diagnosed to have this condition (largely on the basis of behavioral measurements) are categorized into classes for learning-disabled students, their deficits identified and measured, and their futures sealed. They are seen as learning disabled rather than as students whose learning is different from others.

Just as important as the labeling process is that, though the condition itself, the minimal neurological dysfunction, is largely undocumented (Coles, 1987), it has become accepted, like intelligence, as an explanation for widely held social beliefs. How did this situation arise, and what are those social conditions? As with intelligence, the story of learning disabilities is a fascinating one, mandatory for us to know in order to examine the assumptions and practices reflected in the acceptance of an idea as a real thing.

In the following pages I highlight three aspects about the concept of learning disability: First, the story shows the proclivity for believing that the "cause" of the "disorder" lies within the individual. Second, the story of the emergence of learning disability reflects a twist on the same broadly held belief that underpins the acceptance of intelligence as a real thing — some people are disabled in their abilities to learn and therefore need special classes to remedy their disabilities — a variation of the argument that some people are inferior in their abilities to think and learn. Third, I examine the emergence of the concept of language-learning disability as a variation on the concept of learning disability.

The Mislocation of Cause in the Individual

In the early years of the twentieth century, James Hinshelwood, an English ophthalmologist, began writing about what he called word-blindness in students. Hinshelwood became convinced that the origin of

word-blindness lay in the individual's brain, based on his observation that the reading symptoms found in adults with brain lesions were similar to those exhibited by students with reading problems (Hinshelwood, 1895). In 1925, Samuel Orton, a neurologist, saw a patient who exhibited the poor reading abilities described earlier by Hinshelwood in his own clients. Orton decided the origin of these reading characteristics lay in the mixing up of symbols, which itself was caused by the child's failure to establish dominance for language in the left cerebral hemisphere of the brain. His explanation was one of the earliest neurological explanations offered for the cause of reading disabilities. Although Orton believed he had found the origin of reading difficulties, there was little support for his claim (Coles, 1987).

Orton's theories received little attention for several decades. However, beginning in the 1960s, neurological theories were used more widely to explain learning difficulties, particularly in the areas of diagnosis and treatment. Early in the 1960s, parents and professionals began meeting to discuss activities that could be taken to assist children with learning disabilities. During this time, the learning disability explanation for academic problems, based on Orton's organic theories, became widespread as organizations with an interest in academic problems began to form. Among them were the Fund for Perceptually Handicapped Children, formed in Evanston, Illinois, in 1957; the California Association for Neurologically Handicapped Children, formed in 1960; and the Association for Children with Learning Disabilities, formed in 1963, when the term *learning disability* began to be used to indicate academic learning problems.

Toward the end of the 1960s, learning disabilities was what Coles (1987) terms a growth industry. By then, learning disabilities had become a social phenomenon. Middle-class parents in post-World War II prosperity were anticipating that their children would be successful and that education would be the vehicle by which they would achieve their success. Fresh from the Allied victory in the war, Americans saw themselves as the best in the world, first and unequaled in their efforts. In the most telling sort of world competition, Americans had come out on top. The norm for this generation of parents was the American competitiveness that won the war. It is no wonder that they fully expected their children to be the best at everything they tried. When these parents' anticipations for their children failed to materialize, they organized (Coles, 1987).

For many parents during this time, the schools represented an important part of the American dream: Their children would learn in school what they needed to ensure a comfortable life, which included

owning a home and car, having a well-paying and secure job, and possessing financial security to pass on to their own children. Middle-class post-World War II parents entertained high hopes for their children and expected them to be good learners in school. When some of these children experienced difficulties learning — or failed to learn altogether — many parents, inspired by the political-activist climate of the 1960s, organized in an effort to effect school change.

By the mid-1970s learning disabilities was established enough, both as a disorder and as a professional field, to be included in the federal legislation passed to ensure a free and appropriate education for all, Public Law 94-142. By the time the law was passed, learning disability, or LD, was considered a language-related disorder caused by a neurological problem (Larsen, 1990). Six years later, in 1981, a joint committee representing the six professional organizations most directly associated with people with learning disability released their definition of the condition (Hammill, Leigh, McNutt, & Larsen, 1981):

> Learning disabilities is a generic term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning or mathematical abilities. These disorders are intrinsic to the individual and presumed to be due to central nervous system dysfunction. Even though a learning disability may occur concomitantly with other handicapping conditions (e.g., sensory impairment, mental retardation, social and emotional disturbance) or environmental influences (e.g., cultural differences, insufficient/inappropriate instruction, psychogenic factors), it is not the direct result of those conditions or influences. (pp. 336–342)

The assumption underlying this definition is clear: The learning disability is believed to reside within the individual and is of neurological origin, ideas reiterated by Wiederholt and Bryant in 1987. Again, as with the concept of intelligence, a concept had been made real and its source located within the individual, in this case in the central nervous system, or CNS. However, as Coles shows, the evidence supporting this assumption is virtually nonexistent. In an extensive review of the literature on the neurological sources for learning disability, Coles concludes that research studies purporting to support neurological causes for learning disability have serious theoretical and methodological flaws (Coles, 1987). He goes on to argue that the findings from most of the research studies investigating the cause for learning disability were misinterpreted or misconstrued, most often through failure to account for subject differences in motivation, attention, problem-solving abilities, parental nurturing, preschool experience with language and reading, and social interactive experiences (Coles, 1987).

A longitudinal study by Bee et al. (1982) supports Coles' contention. Interested in whether there are any family and parent-child relationships within the family context that could predict children's intelligence and language functioning, Bee and colleagues studied the language and intellectual growth of a group of children from infancy until they were 4 years old. Their findings support the idea that a complex of factors and interactions rather than any single variable accurately predicted these preschoolers' language and intelligence. Among the factors identified by these researchers are:

- parental educational level;
- stress on families;
- spouse and social support for the mother;
- degree of stimulation at home;
- mother's effectiveness in teaching her children (especially sufficient positive messages and a low number of negative ones);
- financial strains;
- health;
- gender roles;
- life satisfaction or alienation;
- life opportunities available to the parents; and
- social support from relatives of the family.

Further support for the idea of learning disability originating in complex social interactions comes from Miller and Westman (1964, 1966). In their work, Miller and Westman, who are family therapists, related their discoveries about reading-disabled boys and their families, a group with whom the researchers worked. Their first discovery was that these families were remarkably cheerful in the face of reading disabilities that were resistant to remediation. On further scrutiny, Miller and Westman found serious problems with family stability. In fact, they concluded that the survival of these families depended on the maintenance of the child's problem. Further, many parents who were insecure about their own intellectual abilities nurtured a "flawed" child to maintain their own intellectual superiority.

The most compelling evidence from Miller and Westman's work arises from the consequences of remediating the boys' reading problems. Some of the consequences reported by Miller and Westman (1966) include:

- mental illness, including psychosis;
- physical fighting;

- parental neglect;
- another child taking on the symptoms of failure in school;
- drastic punishment for behaviors previously considered appropriate; and
- increased parental quarreling.

It is important to note that neurological factors may, indeed, contribute to a person's abilities and experiences in learning. However, Coles (1987) argues that most of the research carried out to investigate neurological factors related to learning disability was influenced by:

> an unswerving postulation that the source of the individual's problem lies within the individual's neurology; a proclivity for "finding" biological causes; a disregard for experiential explanations; illogical reasoning about the relationship between behavior and the brain; a misinterpretation of symptoms; and a readiness to apply a medical label to superficially diagnosed and insufficiently understood academic problems. (p. 15)

Such shortcomings, according to Coles (1987), serve to abstract neurological processes from the individual activities and from the social contexts within which they are embedded. The result is a reification of learning disability. Learning disability becomes an "entity — a *thing*, either a defective brain tissue, a malfunctioning oversized or undersized brain area, or a bad gene — an entity having an existence or force of its own" (p. 15). Consequently, the problems and solutions of learning disability are misconstrued. The "problem" is perpetuated, along with social partitioning. Worse, those identified as "being" learning disabled become victims responsible for their condition as well as for their improvement. Blame is shifted to the victim, who becomes a participant in maintaining the social conditions responsible for being accepted (Coles, 1987).

An interesting offshoot of blaming the students for their learning disabilities is that schools don't have to change their structures at all. If the problem lies within the students' heads, the reasoning goes, there seems no apparent reason to alter the structure of the programs, methods, or practices utilized in schools. Instead, schools open classrooms to "help" disabled students, making the assumption that what their "normal" peers do constitutes "normal" learning, while the learning exhibited by learning-disabled students is therefore not normal and is in need of special remediation, an issue I address in Chapter 3.

I hasten to point out, however, an uneasiness among some professionals about locating the source of the problem within the individual. As early as 1978, for instance, I raised this issue in an article describing

the implications of systems theory for professionals in communication disorders (Miller, 1978). More recently, Nelson (1992) questioned the assumption that disabilities reside within individuals in her assertion that communication disorder practitioners would benefit from taking a systems approach to intervention. She urged clinicians to develop a systems theory perspective to evaluate the effects on students of various personal, social, and contextual variables. A second example comes from Norris and Hoffman (1990) who support language intervention within naturalistic environments in which "spontaneously occurring events, utterances, and communicative situations . . . arise in the context of play, daily routines, and instructional activities" (p. 72). A third illustration is provided by Lund and Duchan (1988), whose premise is that children's language can only be assessed effectively and accurately within naturalistic contexts. Larsen and McKinley (1987) propose a communication-based assessment and intervention program for adolescents that includes the family, the educational contexts within which adolescents function, as well as the importance of peer communication.

An even stronger argument comes from Coles (1987), who has argued persuasively that what we call learning disabilities, along with any neurological dysfunctions that might be associated with them, do not develop from within the individual. Rather, he asserts that these "disabilities" arise from the social relationships within which the individual interacts. He cautions about abstracting neurological processes from the individual activity and social contexts within which they are embedded. He urges us to consider social relationships, not as consequences of the neurological dysfunctions believed to underlie learning disabilities, but as coexisting processes. Coles' belief is that, where there are serious problems with learning, we must look for causes in "the complex interactions that always include both the social and the biological in numerous relationships" (p. 16). Relying on a biological starting point leaves only remediation and no solution to the supposed problem.

More recently, psychologists such as Bruner (1990) have argued for the concept of a distributed self. From this view, describing any given person would include reference to that person's behaviors, beliefs, actions, attitudes, and values, along with references to her social network, the cultural conventions in operation in her life, and the various repositories accompanying her life (e.g., notes, letters, books, articles, paintings, photographs, home furnishings, clothing, and so on). I discuss this concept at length in Chapter 3.

Though the concept of a distributed self offers an antidote to the prevailing notion of disorder located firmly within a discrete individual, it is just beginning to emerge as a salient idea in the various professional

fields associated with education and has not yet had a noticeable impact. An exception is the reauthorization of the Education for All Handicapped Education Act, P. L. 94-142. Renaming the legislation the Individuals with Disabilities Education Act (IDEA) reflects a recognition at the national policy level of the distinctions made by the World Health Organization (WHO) between disabilities, impairments, and handicaps (Nelson, 1992). According to WHO, a *handicap* is defined as the social disadvantage resulting from either impairment or disability. An *impairment* is defined as a loss or abnormality of psychological, physiological, or anatomical structures or function. A *disability* is defined as reduced ability to meet daily living needs. Thus, a disability can vary according to context and stage of life, whereas a handicap varies according to existing impairments or disabilities, along with the biases and attitudes of others in the individual's world.

I return to the idea of the distributed self in Chapter 5 when I propose a competence-based model of learning based on an ethic of caring.

Learning Disability as Inferiority

In Chapter 1, I pointed out that the concept of intelligence as a real entity emerged from social beliefs prevalent in the first half of this century. Among those beliefs was the idea that some people are superior in their abilities, while others are inferior. Intelligence was a means by which people could be ranked according to their relative worth based on their intelligence as measured by an IQ test. In similar fashion, the concept of learning disability arose out of a perceived need among professionals to identify and categorize the characteristics of students who performed poorly in school. However, the concept has acquired many of the features manifested by intelligence, including the idea that some students are superior in their learning and school performance, while others are inferior in these same abilities. Once perceived as a tool to use in obtaining funding and providing programs for students with special needs, the concept of learning disability today often carries with it an onerous quality reminiscent of low intelligence.

In any attempt to rank order individuals' abilities, someone has to be at the bottom of the measurement heap. In general, the measurement process results in the ordering of people or scores along a continuum from highest (largest number correct, most points awarded, biggest, and so on) to smallest (fewest number correct, least points awarded, smallest, and so on). In educational settings, the measurement process has also been used as the basis for developing categories to represent students

with specific scores or attributes as measured on some set of test instruments. Each category is labeled with such terms as "slow learner," "mentally handicapped," "low achiever," "learning disability," and so on.

Coles (1987) asserts that using the learning disability label is seen by parents and teachers as preferable to using other labels such as "mental retardation" or "slow learner." He makes the point that prior to World War II, the social and class distinctions existing in American society were reflected in the schools. Students were segregated according to these distinctions, primarily on the basis of their school performance and test scores. After World War II, the number of people considered middle class increased significantly, accompanied by a quick rise to affluence.

As I pointed out earlier, this new-found affluence carried with it a tacit promise: Middle class life would be fulfilling and affluent. Hidden from this promise were the attendant realities of mortgage payments, job impermanence, commuting from suburbia, a transition into urban and suburban life, and the breakdown of the extended family. Nonetheless, these middle-class parents viewed the schools as the vehicle by which their children would get a good education in order to live the good life.

However, one of the problems with schools is that they tend to reflect and perpetuate the social and economic class distinctions of American society. Anyon's work (1980) on this topic is instructive. Anyon studied five elementary school classrooms of differing social communities, dividing them according to jobs and income into working-class, middle-class, and affluent-professional classrooms. She described the work in middle-class classrooms as focused on getting the right answers, figuring out answers to questions, and following the right rules. She further recounted that students in middle-class schools are frequently punished for being critical or creative, while being rewarded for completing the paperwork — for getting their work done. Acting as classroom managers, teachers expected obedience and compliance from their students.

Commenting on the relationships between schools and the communities in which they reside, Greer (1972) draws the interesting comparison between these middle-class classrooms and middle-class jobs, where high levels of unemployment are viewed, not as the managers' failure, but as a natural consequence of believing someone has to be at the bottom. He then draws the analogy with classrooms in which a certain number of students are expected to fail. Following the attitude displayed in the business world, teachers believe that their students' failures reflect, not their own shortcomings, but their students' inadequacies and weaknesses (Greer, 1972).

Nonetheless, post-World War II middle-class parents did not realize that the schools had always failed to educate a sizable number of chil-

dren. Shocked to discover that many of their children were failing, parents of the 1960s became social activists. Seeing the schools as the source of academic problems and the source of rectification, they demanded change. However, the response of the schools was to espouse an alternative explanation for student failure — learning disability. Coles (1987) suggests that the learning disability explanation appealed to parents much more than other explanations because it extricated parents from blame and carried no stigma compared to other explanations. The term masked the fact that these children were at the bottom of the measurement scale.

Many parents, alarmed at their children's experiences with learning failures, joined with educators in an attempt to discover why apparently intact children were having trouble learning to read and write, while other outwardly similar children learned without difficulty. During the 1960s, the most reasonable explanation was that these children with reading and writing difficulties were learning disabled.

Lacking the scientific expertise to evaluate this essentially biological and reductionist argument that individuals are responsible for their own failures, parents accepted the learning disabilities concept as real. What they accepted was an argument that children who fail are inferior, not because of any stigma or parental neglect, but because of a flawed central nervous system.

It is noteworthy to point out here that the prevailing learning model of the 1960s was behavioristic. The basic idea of the behaviorist model is that the organism's behaviors, including learning, are the result of complex patterns of reinforcement to the organism's responses to stimuli from the environment. Theoretically, then, children receiving the same stimuli from the environment — for example, instruction in reading and writing — should respond in similar ways given their strikingly similar neurological systems. Further, such reasoning implied, if one child responded differently to the same stimulus, the difference in response was believed to lie within the child. Thus, this child's different response could easily be seen as reflective of a difference in neurological makeup.

In a neat turn, learning disability became the new culprit explaining why some children were inferior in school learning and performance. Learning disability took its place as another of the biological explanations for inferiority. Through a misconstrual of problems and solutions, the field of learning disabilities has perpetuated the problem and the social partitioning that accompanies designating some students as *being* learning disabled as a consequence of a flawed central nervous system. As Coles (1987) argues, acceptance of learning disability as a real entity is dangerous because the victims themselves participate in maintaining

the social conditions responsible for its acceptance and their own perceived inferiority.

In this context, it is refreshing to note again the renaming of P. L. 94-142 as the Individuals with Disabilities Education Act (IDEA). The new name indicates a growing awareness of the necessity of altering both our concepts about learning differences and what we call those differences. I have more to say about how we talk about difference in Chapter 3.

The Emergence of Language-Learning Disabilities

The development of learning disabilities as a professional field progressed largely through the efforts of parents and professionals interested in students' failure to learn in school. However, the concepts underlying the "language-learning disability" designation, while obviously related to the concept of learning disability, arose from a set of social and professional conditions different from those surrounding the birth of learning disability both as a concept and as a professional field.

As I mentioned earlier, learning disabilities have been associated primarily with failures related to school learning. The educational background for most specialists in learning disabilities prepares them to work in school settings, where they concentrate on remediating the deficits uncovered through extensive assessment procedures. During their professional training, most spend large blocks of time in schools, and the coursework they take is geared to learning about such topics as curriculum development, educational administration, and the legal rules and regulations governing school financing, among others.

In contrast, most professionals in language-learning disabilities belong to the field of communication disorders. Language-learning disabilities constitute just one of the many areas of communication disorders in which these professionals are prepared to work, and there is wide variety in the professional programs preparing specialists in communication disorders. For instance, the training for some professionals in communication disorders may have focused very little, if at all, on school-related language problems, and many professionals may have had no experience in actual school settings during their professional training. Few communication disorders professionals have had coursework in curriculum development or educational administration or know how the financial structures of school-based programs operate.

What professionals in communication disorders do have, however, is significant expertise in language development and language disorders.

Since the 1969 publication of Berry's landmark book on language disorders (*Language Disorders of Children: The Bases and Diagnoses*), the field of communication disorders has included the study of language as one of its primary areas of concentration, and by 1992 56.3% of the members of the American Speech-Language-Hearing Association, the professional association for communication disorders, practice in school settings. Of these school-based specialists, 97% report that they believe they are capable of providing services for students with language and articulation disorders (Blake, 1992).

Recall that one of the most widely accepted definitions of learning disability states that it is manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. While teachers in learning disability classrooms are concerned with students' learning across the content areas, most communication disorders specialists working in the schools focus their attention on students' linguistic abilities. In fact, by the early 1980s, a group of professionals in communication disorders had adopted the label "language-learning disabled" to refer to those students with learning disabilities who exhibited difficulties with speaking, listening, reading, or writing (e.g., see Wallach & Liebergott, 1984). Since then, the label has become widespread and is used routinely to designate students with language-based problems in school learning.

In thinking about how learning disabilities (hereafter LD) and language-learning disabilities (hereafter LLD) are related, I realized that, while both take a deficit approach to learning, the two models stem from disparate perspectives about the cause of the disorder. The LD model is clear: The disability is due to a problem in the central nervous system, which is deemed the cause of the student's school failures. The LLD model is less focused on cause. Those interested in LLD, though they examine the conditions accompanying the language disorder exhibited by the student, are less concerned with etiology. They concentrate on obtaining a thorough description of the language system of the student and on the ways in which the language system can be modified to better serve the student's needs.

One of the earliest researchers to recognize the linguistic nature of learning disabilities was Vellutino, who argued in 1979 that what had previously been called perceptual errors — neurologically based aberrations in processing linguistic and nonlinguistic material — are in fact linguistic. Vellutino's argument presaged a surge of interest and research in the linguistic factors surrounding children's difficulties with learning. Wallach and Butler's 1984 text on language-learning disabilities in school-age children neatly summarizes the switch from the perceptual processing view to the linguistic development perspective.

A second difference between the two approaches to students' language problems lies in the entry point into students' language systems. Professionals in LD typically begin with a student's failure in reading, while those in LLD study the student's early childhood language development, probing her oral language system for clues linked to her abilities (or potential abilities) with the printed forms of language. Coming from a long history of studying preschool language development, communication disorders specialists were among the first to recognize that the students identified in their preschool years as having language disorders were the same students identified as learning disabled when they entered school. As Strominger and Bashir pointed out in 1977, as the children with language disorders developed from preschoolers to elementary school and beyond, their language symptoms changed — as did the labels used to designate their problems.

By the mid 1980s, the term "language-learning disability" was well-established, particularly in communication disorders, where Wallach and Butler's 1984 text (*Language Learning Disabilities in School-Age Children*) was widely circulated. Again, most of us were relieved to find a term to designate students with a particular set of language characteristics who were experiencing problems in school. We adopted the term and incorporated it into our professional lexicon. Today we use the term as if the concept it describes is real (for examples, see Buttrill Niizawa, Biemer, Takahashi, & Hearn, 1989; Wallach & Miller, 1988; and Westby, 1990).

Using the term "language-learning disabilities" requires making several assumptions. The first is that children with language that is noticeably different from their peers during their preschool years are language disordered. The second assumption is that learning disabilities are real. The third assumption is that, if children's language disorders persist into the school years, they are manifestations of a specific type of learning disability — a *language*-learning disability. This chain of reasoning leads to the conclusion that a language-learning disability, like learning disabilities and intelligence, is a real entity — that is, that language-learning disabilities exist in people.

In this reasoning chain, a difference, albeit significant, in language development during the preschool years is construed as a disorder in language and learning. A label reflecting deficiency is used to name the disorder. Children with this label are often regarded as *being* language-learning disabled, no distinction being made between being disordered and having a condition that is called a disorder.

Where did these labels come from? In large part, they are the result of the measurement process.

TESTING AND THE CREATION OF DISORDER

In this chapter and the last I traced the origins and development of two concepts, intelligence and learning disabilities. I showed how both are concepts created to describe how people learn, think, act, and make decisions. I also pointed out that both concepts rely on measurement, or testing, to categorize and rank order people on the basis of their performance in specific circumstances such as school and test settings. In my discussions, I stressed that both intelligence and learning disability are defined in terms of normal and deviations from what is considered normal.

Here I want to explore what is meant by "normal." To do this, I will focus on the measurement process itself. Specifically, I want to show how we have come to accept the nonstatistical terms *normal, above normal,* and *below normal* in place of the statistical concepts *average, above average,* and *below average* to describe people on the basis of their performance on standardized tests.

In my own work, I have concluded that categorizing people on the basis of what is considered normal and abnormal is a dangerous enterprise, largely because such distinctions serve mainly to segregate and isolate those, especially school children, whose learning and thinking are different from their peers. My belief is that our skewed insistence on assessment, evaluation, and testing has resulted in the creation of disabilities where only difference and individual variation exist. We have created disorder out of difference.

In the following pages, I examine carefully the distinction between the two sets of terms, *average, above average,* and *below average* and *normal, above normal,* and *below normal.* In addition, I propose to explore the implications of assuming these sets of terms are equivalent. To do this requires some understanding of how tests are designed, the scores yielded by the test instruments, and assumptions underlying the test instrument.

CHARACTERISTICS OF TESTS

As part of the test development process, most authors of standardized tests administer their test to large numbers of people who theoretically represent a cross-section of the population the authors wish to target with their particular test. This group of people becomes the authors' standardization or normative population. For instance, if the authors want to develop a test for use in the elementary grades, they will admin-

ister their test to a large number of elementary school students, who become the standardization population for this test. The authors usually attempt to select students who are representative of the latest U.S. Census figures for race, sex, socioeconomic status, educational level of parents, geographic area, urban-suburban-rural area, and so on. Some authors include students who have been identified as having various handicapping conditions (e.g., learning disability); others deliberately omit such students from their standardization group.

Once the standardization group has completed the testing, the authors compile and tabulate the results, which then become what are known as the "norms" for that test. Note that the norms are not necessarily indicative of what is normal, above normal, or below normal. These norms reflect the scores received by each of the members of the standardization population; they are mathematical renderings of the results of the testing carried out on the standardization population. That is, the norms are mathematical statements about the performance of the normative (or standardization) group on the test. These mathematical statements are descriptions resulting from reducing the data obtained from the measurement carried out by the testing. The resulting mathematical reductions depend on several conventional procedures the authors utilize in tabulating the results, known as the *raw scores*, of the testing.

The Frequency Distribution

The first step in data reduction after scoring the test and obtaining the raw scores is to assemble them onto a frequency distribution. The frequency distribution shows measurements (the raw scores) in terms of the frequency with which they occur. The most familiar frequency distribution is the so-called normal curve (the bell curve), which has most scores clustering in the middle.

Essentially, each frequency distribution shows a rank ordering of the individuals whose characteristics or performances were measured. Note that, if the distribution is indeed normal, that is most scores cluster in the center with fewer and fewer scores toward the extreme ends of the distribution, half of the scores will be below average. This use of the term *normal* indicates that the actual scores are identical with what would be expected from sampling a large population of people on this particular variable, that is, intelligence. A normal distribution is one in which the frequency of scores resembles a bell curve. Thus, a normal distribution is one with the shape of a bell curve. Again, note that this use of *normal*

does not imply normalcy in the sense of normal or abnormal. It merely describes a particular type of frequency distribution.

Once the raw scores have been assembled onto the frequency distribution, several other mathematical procedures are undertaken to further reduce the data. These mathematical procedures, which are applied to the raw scores on the distribution, are a shorthand way to summarize the distribution of the raw scores obtained from the measurements taken by the testing. The three most typical procedures include calculating some measure showing how the scores tend to cluster in the middle of the distribution (known as measures of central tendency and most commonly represented by the mean or median); a measure showing how the scores tend to scatter away from the middle (the standard deviation); and various conversions of the raw scores into scores that can be generalized across tests and across test subjects.

Measures of Central Tendency

The most common description of the tendency of scores to cluster around the middle of the distribution is the average, also known as the mean of the distribution. This score is usually considered the most typical of the distribution, as it represents the arithmetic mean, which involves considering each score in its calculation (through adding all the scores together before dividing by the total number of scores). A second description of the tendency of scores to cluster near the center of the distribution is the median which describes the middle score — that score falling midway between the highest and the lowest scores. A third description, though infrequently used , the mode is another means of representing the central tendency of the scores in a particular distribution. The mode represents the most frequently occurring score.

Describing How Scores Scatter Away from the Middle

To describe how the raw scores vary away from the middle of the distribution, the authors can use two approaches. One is to report the range, which indicates the difference between the highest and the lowest scores.

A more common description of the dispersion, or variability, of scores in a distribution is given by the standard deviation. The standard deviation reflects the average difference between the scores in the distribution and its mean. Note that here the term "average" means an ariti-

metic average, and not any characteristic of an individual person. The standard deviation shows how any individual score deviates from the mean.

Because the calculation process involves comparing each individual score against the mean, the standard deviation is considered a useful measure. It reflects the average dispersion of a set of scores around the mean. It shows the average distance from the mean for the scores in any particular distribution.

Note, however, that the standard deviation is different from the standard error of measurement. Because it is impossible when measuring any variable to obtain a true measure, the standard error measurement allows one to understand how much variation in the scores is the result of the chance variation inherent in the measurement process itself. The standard error of measurement reflects the average amount of error that exists in any particular test instrument, and allows one to calculate for each raw score a band on either side within which one can be confident the "true" score would fall. Remember that "average" here refers to an arithmetic number, not to behavior.

WHAT THE SCORES MEAN

Converting Raw Scores

When authors design and construct a test instrument, they typically administer it to large numbers of people to obtain a large pool of scores. In general, the larger the pool of scores, the greater the stability and reliability of the instrument. Most authors attempt to include a representative sample of people from various geographic areas, different ages, both sexes, educational level, the range of economic circumstances, and racial and ethnic groups. What is rarely attempted, however, is deliberately to include people from varying cultural backgrounds. While there is often a correlation between educational level and economic circumstance, as well as between economic circumstance and cultural background, these relationships are not enough to guarantee the inclusion of people from multiple cultural backgrounds in the testing sample. The result is that the majority of the raw scores in a given sample represent the majority culture. The norms for the test, then, are established on the basis of the majority of scores, which frequently reflect the majority culture. Separate norms are not usually generated for different cultural groups.

However, different norms are typically calculated for different ages. To show developmental changes with increasing age, most intelligence

tests include people of different ages in their normative pool. The resulting pools of data are then separated and categorized according to specific age ranges. In some cases test authors separate data on the basis of gender, as well. The result is that each age (or gender) category will have its own frequency distribution, its own mean, its own range, and its own standard deviation.

As you might imagine, comparing scores across different age groups is unwieldy because there is no standard; each set of raw scores has its own particular characteristics reflected in the summary statements made about it.

Standard Scores

To remedy the difficulties inherent in using raw scores to summarize test results, statisticians developed a method for converting raw score information into a standard scale utilizing an arbitrarily set mean and standard deviation. The most familiar standard scale is what is called the *deviation IQ score.* The deviation IQ score uses a mean of 100 and a standard deviation of 15 or 16. Most test instruments report the results of the normative population's performance on the instrument in tables showing the raw scores of various age groups, as well as tables showing some sort of standard score, most likely the deviation IQ score.

I should emphasize that, though the most common standard score used in psychological testing is the deviation IQ score, the name is misleading. It merely signifies a particular standard scale for reporting test data and is not limited to scores yielded from intelligence tests. It is in common use on various sorts of test instruments, ranging from tests of language ability (the Peabody Picture Vocabulary Test — Revised) to tests of learning aptitude (the Detroit Tests of Learning Ability — 3).

The primary strength of standard scores is that they are conducive to comparison. One can easily compare any individual score with any other. For this reason, standard scores are commonly used to indicate where along the frequency distribution an individual score falls — in other words, how this score compares with others in the same distribution. The standard score shows the individual score in relation to the "average" score, or the mean for that distribution, as well as how it stands in comparison with all other scores in that distribution.

Percentile Scores

Percentile scores are another form of converted raw score. The percentile ranking of any score shows what percentage of scores fall at or below this specific score. Thus, if a score is described as at the 72nd percentile,

then 72% of the scores in that frequency distribution fall below it. It is important to note that percentile scores do not indicate the percentage of items scored correct on the test.

While percentile scores are useful in showing the relative ranking of individual scores in any given distribution, they can easily be misinterpreted because they do not reflect equal distances between them. Look at Figure 2–1, which shows three scales characteristic of a normal distribution: the z score, which indicates standard deviation units, a standard score represented by the deviation IQ scale, and a scale showing the percentile scores. Notice the distance between the 1st percentile and the 10th percentile. Now compare the distance between the 40th and the 50th percentiles. You will see that the distance between 9 percentile units in one part of the percentile scale (1st to 10th) is considerably larger than the distance between 10 percentile units in another (40th to 50th).

Parents with school-age children frequently receive the results of tests their children have been given as part of the educational process. The results are often reported in percentile units, which must be interpreted with caution. Suppose, for example that you have a daughter in fifth grade. After individual achievement tests are administered at school, you receive a printout of her test results, which tells you, among other things, that her percentile score for language arts is in the 78th percentile and for math is in the 92nd percentile. What this indicates is that your daughter scored at or above 92% of her peers in math, and at or above 78% of her peers in language arts.

Age-Equivalent or Grade-Equivalent Scores

On a particular test instrument spanning several ages or grades, the authors are likely to separate the resulting scores according to age or grade levels. In addition, for each level, a separate frequency distribution is assembled, along with its summary statistics (mean, standard deviation, and so on). The average score within each age-level distribution is often assigned to any age student obtaining that average score. For example, suppose a student's raw score in language arts is 79. Because 79 is the average score obtained by 13-year-olds on this same test, this student is assigned an age-equivalent score of 13, though her chronological age at the time of testing was 11.

Or consider another example. Suppose another student, a 15-year-old, obtains a raw score of 76 on a test of mathematical ability. Because this raw score is the average for 9-year-olds, this student is assigned a mental age (a variation of an age-equivalent score) of 9 years, implying

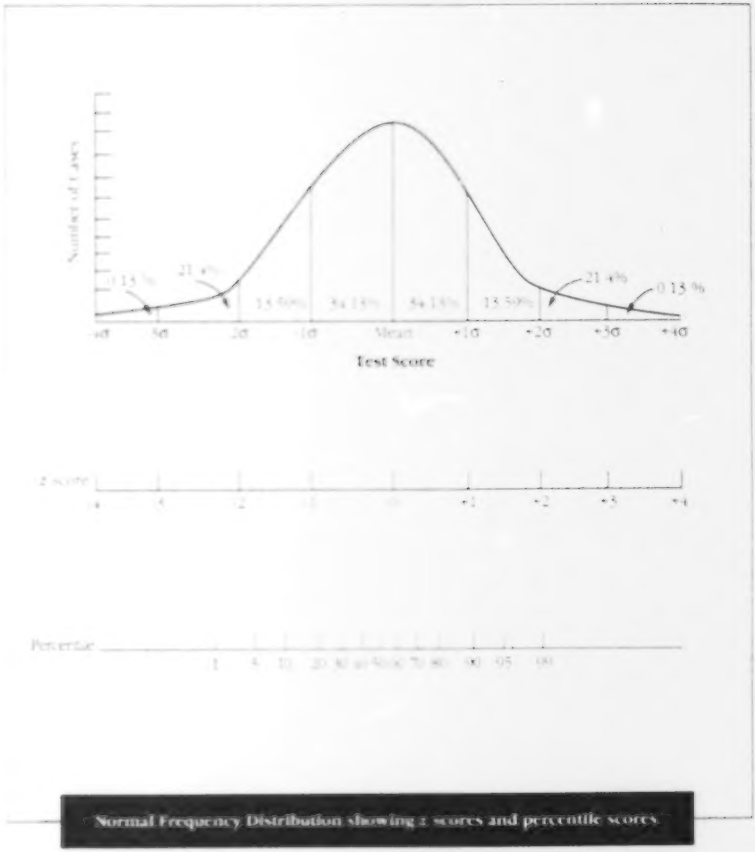


FIGURE 2-1
Three common scales shown on frequency distributions.

that her knowledge and ability in math is the same as that of a 9-year-old even though this student's chronological age is 15.

The use of age-equivalent scores or age norms is uncontroversial for such physical charcteristics as height, weight, or head circumference. We are accustomed to comparing these attributes. In fact, we have learned that certain measurements, particularly weight, which deviate significantly from the average, or mean, of the distribution of measurements of that variable are considered above or below "normal." That is, a certain

weight is considered below normal because it deviates significantly from the mean of the weight of the group of people on whom the standard, or the "norm," was based.

However, when used with psychological characteristics, age- or grade-equivalent scores (or mental ages) require extreme caution in interpretation, both because of the information that is *not* included in the numbers used to represent this type of score as well as because of what these scores imply about comparison with the "normative" group. There are several reasons for caution:

- Age-equivalent scores are not necessarily equivalent from distribution to distribution. That is, the difference between 9-year-olds' scores and 10-year-olds' scores may not be the same as the difference between 17-year-olds' scores and 18-year-olds' scores. Comparison between the two age groups is not possible using the different units represented by the two different distributions.
- Age-equivalent scores are misleading because they encourage one to assume that the student's age score indicates that he should know what a person that age knows, or perform the way a person that age performs — that is, be closer to "normal." Common sense specifies that a 15-year-old is quite different from a 9-year-old, or that a 10-year-old is different from a 13-year-old. The best interpretation one can make is that the 15-year-old with an age-equivalent score of 9 years has answered correctly the same number of questions that the average 9-year-old has answered.
- Age-equivalent scores mask the fact that the information or ability tested may be quite different in different age groups. For instance, on the arithmetic section of a typical achievement test, a 10-year-old would be likely to encounter math story problems involving fractions, percentages, or ratios, while a 13-year-old given the same achievement test would need to use basic concepts of algebra to solve the problems.
- Many age- or grade-equivalent scores represent scores not actually obtained by anyone in the normative population. The authors may use a statistical procedure known as interpolation to suggest a probable score that is representative of the average score in a given distribution. In other words, the score indicated as the average score for a particular distribution may not have been obtained by anyone in the normative sample. Thus, while such a score implies normalcy, it is an artifact of a statistical procedure and does not represent an actual score.

- Age- or grade-equivalent scores imply a continuous and constant rate of growth or development across time. They promote the idea that 16-year-olds are developmentally the same distance from 16-year-olds and 18-year-olds, when, in fact, growth curves for several aspects of human development tend to show fits and starts, as well as a flattening after a certain age.
- Age-equivalents exaggerate small differences in test performance. For instance, suppose the average score for 17-year-olds on a particular test is 87 correct, while the average score for 15-year-olds is 84 correct. If the 17-year-old answers 84 correct and is assigned an age equivalent of 15, this assignment masks the fact that the student's performance is almost identical to those of the same age. While the average or mean for each distribution may be close, the age-equivalent score will mask the relationship. A small difference appears much more significant than it is.
- Age- and grade-equivalents are inappropriate to describe skills or knowledge that peak at a younger age or that are often not taught in school beyond a certain grade, such as phonics rules or state capitals. What is "average" for one group may not be for another.

Perhaps the most telling limitation to the use of age-equivalent scores, however, is that they bear no relevance for adult development, knowledge, or skill.

Interpretation and Misinterpretation of Scores

Kerlinger (1973) argues that test scores *do not* indicate the quantity of the variable being measured. In a cautionary statement, he states flatly that intelligence, aptitude, and personality test scores are, *"basically and strictly speaking,* ordinal. They indicate with more or less accuracy not the amount of intelligence, aptitude, and personality traits of individuals, but rather the rank-order positions of the individuals" (p. 439, emphasis in the original). The only accurate conclusion one can make about a psychological test score is where it lies in the frequency distribution — that is, its order relative to the other scores yielded by the measurement process. *No conclusion can be drawn about the quantity of the variable under measurement.*

However, most test scores are misinterpreted as conveying information about the quantity of the variable under measurement, especially

as quantity is thought to relate to what is a "normal" quantity and what is abnormal. A frequent misinterpretation is to disregard the arithmetic meaning of the frequency distribution, that is, its numeric summaries of average or mean, standard deviation, and range and instead focus on an individual score as a measure of a specific quantity of the measured variable. When compared against the "norms," that is, the scores generated by the standardization population, individual scores are described in terms of how "normal" they are in terms of the quantity they reflect.

Whether comparisons are made between groups of scores (e.g., between U.S. students' Scholastic Aptitude Test [SAT] scores and those of students from other countries) or between an individual and a larger group (as in comparing an individual's SAT scores against the national norms), Kerlinger (1973) points out that the scores only reflect relative position in comparison with other scores. They do not indicate that students from other countries, for instance, know more math or are better at science, or that the United States is failing in its efforts to educate its young people. What they *do* reflect is that, in comparison with others' scores on geography tests, the scores obtained by students in the United States fall at a certain point in the frequency distribution of all scores from the geography test. Similarly, to conclude that a person's IQ score, because it falls, say, at 90, shows less intelligence than a person whose score falls at 105, for example, is a fallacy. So, too, is the conclusion that an IQ score of 80 is below normal. It is certainly below the average for that distribution, but it cannot be said to be below normal.

To summarize, there are two steps in the process of transforming difference into disorder. The first involves labeling the statistical information related to a given frequency distribution as chacteristic of the "normal" population, that is, the population used to standardize the test — the standardization population. The second step is the assumption of disability, disorder, or impairment on the basis of deviation away from the average range of scores achieved by the standardization population. This assumption rests on the supposition that the scores of the standardization population are "normal."

The implication of substituting "normal," "above normal," and "below normal" for "average," "above average," and "below average" is that anything outside the range of average, that is, any score falling one standard deviation or more away from the mean, is assumed to be *ab*normal, away from normal, deviant. This substitution shows a failure to recognize that all the scores on the distribution are themselves "normal" because, first, they are derived from the population used to establish the "norms" for the instrument, and, second, because each score is a member of the normal curve. The scores outside the average range are just as

typical of the measurement process as scores within the average range — there are just fewer of them. They represent the minority, whereas the average scores represent the majority of scores on that particular measurement instrument.

Therefore, the scores obtained by the minority come to be considered abnormal, deviant, disordered. The absurdity of this practice can be seen through an analogy with human blood types. There are eight immunologically distinct blood groups in humans, each genetically determined and characterized by unique adhesive properties. However, the eight types are not distributed equally across the human population, instead dividing as follows:

- 1% B−
- 3% AB+
- 6% A−
- 38% O+
- 36% A+
- 9% B+
- 6% O-
- 1% AB−

The majority of people carry O+ or A+ blood, while the minority carry the other six types. If we were to follow the practice we use with other sorts of measurements, say the measurement of intelligence, we would label anything other than A+ or O+ blood type disordered or impaired. Yet, most of us agree it is preposterous to call O+ or A+ blood type "normal," while labeling AB−, AB+, or B− as "abnormal," or worse yet, "deviant" or "impaired." Why do we consider below average intelligence a disorder, while we see below average blood type as acceptable? Surely a question worthy of consideration.

I have tried in the preceding paragraphs to show how using numbers and mathematical reductions of data yielded by most standardized tests is problematic and incomplete, often resulting in unwarranted conclusions. I have attempted to delineate some of the common pitfalls and uncertainties one faces when engaged in the interpretation of the numbers associated with standardized tests. Throughout my discussion, I focused on the numerical and mathematical concepts underlying test construction to show how those concepts are limited and often misleading. My point has been that numbers do not tell the entire story about any particular individual, regardless of the robustness of the test or its reputation in the marketplace. In fact, the story told by numbers can be, and often is, harmful.

In the next chapter, I examine the effects of describing people using the deficit-based labels frequently derived from the use of test instruments to measure performance.

Our Biases Are Showing: Or, How We Talk About People

In the preceding chapters I described two major issues arising from the Western insistence — the story we tell ourselves — on being the best in everything we undertake. First, I traced the emergence and popularization of the concept of intelligence and its resultant ordering of people on the basis of their value and worth as measured by their IQ score. I related the story that has arisen about intelligence and how to "measure" it. Second, I described the parallel evolution of the concept of learning disability as a consequence of a newly acquired affluence and heightened expectations of the middle class following the end of World War II. As part of this latter description, I discussed the emergence of the concept of language-learning disability to describe the linguistic origins of many learning disabilities. In my discussion, I showed how these two concepts became accepted pillars of the story constructed to explain differences in learning.

Along the way, I made clear my biases about the events I described. I indicated my concern about the dangers inherent in using tests to meas-

ure qualities (intelligence, learning disability, language-learning disability) that are, at best, crude indices into complex and often contradictory human processes — if they can be said to exist at all. I argued that the decision to test individuals is to accept the conclusion that some people are superior, that is, more worthy or valuable, than others on the basis of their possession of certain qualities or their abilities to perform given tasks. I attempted to show that the runaway emphasis on testing and scores and rankings is grounded in a pessimistic, deviation approach to human thinking, action, and learning.

In this chapter I present an alternative story, the beginnings of a new narrative about learning — an approach founded in describing people's qualities rather than measuring quantities thought to represent their thinking and actions. Here I propose an antidote to the Westest, Bestest, and Testest craze exemplified by the majority of our educational practices. I begin by contrasting the prevalent approach, exemplified by the philosophy of deficiency, with its alternative, the philosophy of abundance, or competence.

THE PHILOSOPHY OF ABUNDANCE

The philosophy of abundance, in contrast to the philosphy of deficiency, is based on capability and competence. It presumes an optimistic explanation for human thinking, learning, and ability. This abundance perspective assumes that each person, regardless of age, gender, economic circumstance, or geographic location, is constantly in the process of constructing meanings based on her or his own life experiences. Further, this perspective allows us to see how we are curious and motivated to learn given appropriate circumstances. Taking this perspective shows how each one of us attends to the aspects of life in which we find the most value.

Taking the perspective of abundance allows us to see individuals rather than aggregates. This perspective offers us insight into individual talent and competence. We can see how individuals approach the challenges and pleasures of their lives. Further, we can see the unique patterns of competence each person offers to the culture and the possibilities such diversity suggests.

The perspective of abundance is based on possibility, not limitation. It begins with the assumption that everyone is included, not excluded. Each person's individual patterns of competence are regarded as gifts to be learned from, not disorders to be remedied. Individual variation, especially significant variation, is provocative because it carries with it the promise of new ways of thinking and acting.

An example from the field of autism illustrates the point. Often those identified as having autism use a set of language patterns called *echolalia*. This means that they often mimic parts of what have just been said. The following conversation illustrates:

Mother: "Jason, tell Mrs. Sanchez what your name is."

Jason: "What your name is."

Mother: "No, tell her, 'My name is Jason.' "

Jason: "My name is Jason."

Mother: "Good. Tell her your dog's name."

Jason: "Your dog's name."

In this conversation, Jason's responses, his echoing of parts of his mother's comments, are considered echolalic. For decades, these echolalic responses were considered by psychologists and speech pathologists to be deviant from "normal" language, and thus were to be remedied. More recently, several experts in autism (e.g., Barry Prizant, 1983) have argued that the child's echolalic responses are evidence of an emerging language system, albeit different from the "normal." Rather than trying to eliminate the echolalic responses, they are used to assist the child in developing more sophisticated language — an instance of switching from a perspective of lack to one of abundance.

Another example of the perspective of abundance involves medicine. In the Western hemisphere, the practice of medicine hinges on the identification of disease and pathology. The body is viewed as interlocking sets of machines or mechanical processes, any of which can break down and require fixing. The medical doctor diagnoses the breakdown, finds what is *wrong*, and prescribes medication, surgery, or rehabilitation such as physical therapy to "fix" it, clearly an example of the philosophy of deficiency.

In contrast, the practice of holistic medicine is based on the idea that the body is an integrated system possessing the ability to heal itself. The body is considered a process, part of which includes periodic cleansing and purging, which are seen as natural parts of living organisms. In holistic medicine, the concept of disease is quite different from that used in traditional, Western medical circles. The holistic concept of disease is that it represents the body's natural process of ridding itself of waste. Disease is seen in a positive, rather than a negative, light, and death is viewed as the natural result of the processes characteristic of living organisms.

Unlike the perspective of deficiency, the perspective of abundance highlights strength, power, and competence. It underlies the belief that

each of us possesses exactly the right — sufficient — way of paying attention, of learning, of being curious and motivated, regardless of the transient misfortunes that happen in everyone's life.

Martin Seligman (1990), a psychologist who has spent his career studying the causes and effects of helplessness, argues that the style people use to explain their lives determines their susceptibility to helplessness and depression. In studying which people never give up — those who resist giving in to misfortune — he discovered that these people exhibit an explanatory style reflecting the perspective of abundance. These people believe that bad events are temporary, that they are specific to a particular set of events, and that the causes of bad events are external to themselves, while the causes of good events are internal. Putting Seligman's findings into the terminology of narrative, we can say that people who never give up — those with a positive explanatory style — have developed a story of abundance in which they weave a tale in which they triumph.

In studying the explanatory style of school children, Seligman (1990) found that children's explanatory style was a stronger predictor of achievement than IQ or achievement test scores. In explaining the outcome of a study undertaken by Dweck and Licht (1980), Seligman described a group of grade-school children. When confronted with a series of unsolvable problems followed by a series of successes — solvable problems — students with a pessimistic explanatory style exhibited diminished problem-solving strategies and talked about hating the task. Their optimistic peers, equal in ability before the series of failures, continued to exhibit grade-level problem-solving strategies and stayed involved in the task even while acknowledging they were making mistakes. After the children were given the success problems, those with a pessimistic explanatory style discounted their successes and predicted that in the future, they would be able to solve only 50% of the problems they had just solved perfectly. The students with an optimistic explanatory style predicted they would be able to solve 90% of the same problems. The positive narratives of these latter students provided a means by which they could see themselves as empowered and capable.

THE PHILOSOPHY OF DEFICIENCY

In my discussions in the preceding chapters, I traced the evolution of concepts and stories grounded in the idea that some people are deficient or lacking in certain characteristics of thinking, learning, and language use. I implied that a vast human resource is overlooked and often delib-

erately excluded by our acceptance of the rank ordering of people, regardless of the method we use — attitudes, values, test scores, religious doctrine, or national and political interests. I argued earlier that the desire and practice of rank ordering people arises directly from a pessimistic style of explaining human ability and potential. This pessimistic explanatory style, a term coined by Seligman (1990), can be described as a philosophy — or story — of deficiency or lack.

The philosophy of deficiency takes the view that those whose performance deviates from the majority lack some critical attribute, ability, or potential. This story of deficiency underpins any sort of ranking by which people are valued for the degree to which they exhibit some characteristic, such as intelligence. In this story, the perspective of deficiency assumes that there is a correct way to attend, to learn, and to make meanings. Anyone who deviates from this "correct" way is viewed as inferior, or, worse, as disordered or disabled. The perspective of deficiency relies on the ongoing comparison of people with each other and against the statistical mean, or average, that becomes accepted as the norm, or the "normal." The story hinges on "right," "wrong," "normal," and "abnormal."

Some examples of the effects of the philosophy of deficiency will illustrate what I mean. One obvious example is the way American public education is structured. Students whose performance and test scores are average or above are placed in regular education classrooms, while most of those whose performance and test scores fall below the average range are placed in remedial programs. The story we tell is that some students are "regular" — read "normal," while others are "special" — read "abnormal."

Even more telling is how the special education classrooms are funded and labeled. The federal funding for special education (P.L. 94–142), legislated into law in 1975, is based on students being identified according to some disability. Typical disabilities are learning disabilities, communication disorders, behavior disorders, emotional disturbances, mental retardation, physical impairment, multiply handicapped, and so on. The entire enterprise is based on identifying and labeling deficit, or lack. Children identified as deficient receive an entirely different education than those identified as "measuring up." Most children, once they are placed in a special education program, do not return to regular education. They carry the "disability" label throughout their school careers and into adulthood.

Deficit, or lack-based, models and stories depend on using an external and arbitrary standard against which to evaluate everyone. In the United States, that standard is typically whatever is considered the

"best." In other words, there is an American myth that *everyone* must be the best at whatever we attempt — no beginnerhood allowed. On top of that, the myth holds that the West is superior to everyone else, so of course we must be best. And just to make sure, we will test frequently to find out. Of course, what we find is unsurprising: We are often *not* the best at everything, the myth notwithstanding.

The effect of the myth of expertise is pervasive. School children whose performance deviates below average are identified as being deficient, lacking in worth, inferior. As adults, when we wish to learn a new activity or way of thinking, we are fearful of not being good enough. We accept the idea that if we are not already good at something, we need not even try it, or we bolster our courage by listening to motivational tapes exhorting us to find our personal power. The corollary of this story of expertise is that we believe we must be professional at something to do it; typically, we see no avenue for engaging in something simply for the pleasure of it if we are not good at it to begin with. Instead, we are becoming spectators of other people's professional efforts. As a result, we are losing the enjoyment of pleasures that used to be commonplace: singing, playing music, sports, and reading aloud, among others.

In my conversations with teachers, I find quick recognition of the myth that everyone must be immediately expert. When I inquire into teachers' decision-making regarding their experiences as beginners, I hear unanimous stories of decisions about whether to reveal a beginnerhood status or to attempt anything new in which one is likely to be teased or ridiculed for being a beginner. Many teachers report that the Individual Education Plans (IEPs) they write or receive for their students reflect little or no awareness of the length of time students need to spend being beginners in their learning.

Consider for a moment the fate of anyone who is a minority of any kind or who has been identified as lacking some attribute or quality deemed essential by the majority. Whatever it is they lack is seen as a deficit, a failure to be as good as, or as worthy as, those in the majority who possess the requisite quality. Several possible courses of action can be taken by the minority. An effort can be made to remedy the lack or deficit, as special education programs attempt to do. Or the quality in question can be defined by the minority as an asset to be cultivated, an example being African-American vernacular speech patterns, which are deliberately fostered and expressed. Another course of action is to contradict the majority's perception of lack. An example of this is the creation and development of a tradition of a feminist literary criticism and feminist aesthetics as a counter to the traditional, male-oriented literary criticism and aesthetics. Yet another avenue is to disappear, to

melt away from the attention of the majority, as many ethnic groups have done for decades in large urban areas and on government-allotted reservations.

The net effect of the philosophy of deficit is that it *limits* people — even those who have been rewarded for possessing the appropriate attributes. Whole groups of people — women, homosexuals, African-Americans, Hispanics, Native Americans, children who learn differently, to name a few — have been excluded from active and, more important, equal participation in the broader culture. The perspective of deficit touches each of us as it permeates our lives. We are discouraged from certain activities; we are told we cannot learn; we are advised that school is where we memorize rules, study what other people think we should study, and break up our attention in 45- or 50-minute chunks; we learn we have not been accepted to the school or job of our choice because our test scores are not high enough. In short, we are told we are inferior and unworthy. To the extent that we accept our "deficit," we are shunted to the margins of the culture, where we remain, often angry and hurt, but definitely of little threat to those who control the accepted modes and stories of thought and action. To believe in deficit is to accept a pessimistic explanation for one's fate — a stance that has significant and long-standing effects.

Again, Seligman's work is illustrative. He has found that the people most likely to give up easily — to become helpless and depressed — are those who believe the causes of the bad events that happen to them are permanent, pervasive, and personal. The bad events will never go away; they will always persist to affect their lives. In addition, these people see bad events as universal — they affect every aspect of their life, not just that one part of their life in which something bad has happened. These people also believe bad things happen because they cause them. They blame themselves for everything and think they are "worthless, talentless, and unlovable" (Seligman, 1990).

Nor surprisingly, Seligman has also found that people who believe bad events are permanent, pervasive, and personal (i.e., self-generated) have generally low self-esteem and little hope that their actions carry much weight. Their explanatory style prevents them from seeing misfortunes as momentary, specific, and external to oneself.

Seligman's work has direct implications for our educational structures and practices. As I pointed out earlier, our infatuation with measuring intelligence, achievement, and language development results in a continual rank ordering of students, some of whom are given the message — both implicit and explicit — that they are not as good as other students, that they are deficient in some way and do not measure up.

This message exemplifies a pessimistic explanatory style. First, it personalizes the pessimism. It implies that those whose scores do not measure up are inferior and, worse, that the inferiority is their fault. If they would try harder or learn more, they are told, their scores would rise. Second, for most students, the label of deficient or impaired sticks with them throughout their school careers, thus perpetuating the permanence of their disorder. And third, because school constitutes such a significant part of most students' lives, being told one is deficient in school is tantamount to announcing that the deficiency pervades the students' lives. The message is: If you are not good at school, you are a failure in your life.

How can we use Seligman's findings as we scrutinize our educational practices? For one thing, we must address Seligman's finding that children learn pessimism both from the discouraged adults around them as well as from the criticisms adults make of them. We must examine carefully the implicit and explicit messages we convey to children about their abilities. As presently constituted, our educational system has institutionalized a pessimistic explanatory style and story for the large number of children whose performance falls below the average range.

Second, we must investigate avenues for teaching children optimistic styles for explaining their lives to themselves and others. In our work with children, we often see children who do not respond to our efforts to encourage and exhort them to do better. We can develop our abilities to see the connection between adversity, belief, and their consequences, and we can help children make that connection for themselves.

Seligman (1990) offers a promising approach for teaching children an optimistic style of explaining their events in their lives. His approach involves showing the child that bad feelings do not come out of nowhere and that what we *think* and tell ourselves when things go badly actually changes how we feel. Learning to find our thoughts allows us to change them. Seligman provides a set of sample scenarios to follow in developing an optimistic style in children and argues that, if children learn the skills of optimistic explanation, they "may become all but immune from the protracted feelings of hopelessness and helplessness that otherwise could afflict [them]" (p. 253).

THE CONCEPT OF THE DISTRIBUTED SELF

In my discussion so far, I have alluded frequently to the concept of the self. Here I want to talk more directly about the concept of self in order to raise two questions of significant import for education: Who is responsible for learning, and how is that responsibility best met?

At least in Western cultures, several centuries of thought and analysis have resulted in the story — the belief — that each individual possesses a self. Until recently, the most prevalent view of the self has been that it consists of an agent operating in an inner world of experience under the control of our own intentional states (Bruner, 1990). The agentive self was believed to be bounded and unique, what Geertz (1979), in a rejection of this viewpoint, has described as "a dynamic center of awareness, emotion, judgment, and action, organized into a distinctive whole and set contrastively against other wholes and against a social and natural background" (p. 279).

The idea that the self is distinctive, contrastive, and agentive arose directly from the tradition and narrative of science: Such a self can be isolated, measured, and quantified. As Bruner (1990) put it, self became a function of the methods used to measure it: Just as intelligence "*is* what intelligence tests measure, 'the self' is whatever is measured by tests of the self-concept" (p. 101). Because the self was seen and talked about as a distinct entity with clear boundaries, a measurable quantity, it was also endowed with causality and responsibility. Each person was seen to be the source of all of her or his ideas, beliefs, attitudes, and behaviors, all of which were seen as the person's sole responsibility.

What this concept of the self has meant for educators is that we have accepted the idea that each self is responsible for its own functioning. To the question, "Who is responsible for learning?" we have answered: The self — each child is responsible for her own learning. Our responsibility is to teach, the student's responsibility is to learn. As for the question, "How is that responsibility [for learning] best met?" we have responded with new methods and techniques based on the assumption that we are meeting our responsibility by providing information to each self — to each student. The current story we tell about education reveals our bias toward a quantifiable and measurable self, responsible for its fate. The narrative we offer to many students is a narrative of failure, of deficit and impairment. Citing their failures, we blame students for shortcomings of culture and history. We offer them a narrative of remediation and inferiority, and we abdicate our own responsibility when we foster a narrative of pessimism.

In recent years the traditional concept of self has been challenged by a group of scholars who believe that the self resides not only inside the person, but also in the relationships, actions, artifacts, and objects surrounding her (see, for example, Geertz, 1979; Heilbrun, 1988; and Polkinghorne, 1988). These scholars assert that one's self is *distributed* across the full range of each person's perspective, and it can only be referred to accurately in this way. To describe it as a contained and constricted entity is to lose sight of its depth, variety, and complexity. What proposing the

story of a distributed self implies is that any given person cannot be understood solely in terms of her individual self. She can only be understood in the context of her activities, relationships, beliefs, possessions, habits — in the doing and telling her life.

Bruner (1990) has taken the idea of the distributed self a step further. He argues for a story of self as a transactional relationship between a speaker and an other. Further, he sees the self as "a way of framing one's consciousness, one's position, one's identity, one's commitment with respect to another" (p. 101). In other words, self is a story, a narrative we *construct* for our transactions with others. From this perspective, self is seen as a social reality, negotiated with others, and distributed and storied between them. A person's knowledge is "not *just* in one's own head, . . . but in the notes that one has put into accessible notebooks, in the books with underlined passages on one's shelves, in the handbooks one has learned how to consult, in the information sources one has hitched up to the computer, in the friends one can call up to get a reference or a 'steer,' and so on almost endlessly. All of these . . . are parts of the knowledge flow of which one has become a part" (p. 106). The story we tell ourselves about ourselves is the narrative that is our self, the description of all our social and cultural participations. Thus, self is located in a cultural-historical situation and is a storyteller, what Bruner calls a constructor of narratives about a life (p. 111).

How does taking self as distributed and as storyteller allow us to address our questions about responsibility for learning? To begin, we can see that, in this view, learning takes place in the cultural-historical situations Bruner (1990) describes. The responsibility for learning lies in those who participate in such situations, not just in the students themselves. The distributed self allows us to situate learning in the people, procedures, practices, events, and structures participating in and constituting the process we call "education." For students, learning involves what Bruner says is "participating in a kind of cultural geography that sustains and shapes what he or she is doing, without which there would . . . be *no* learning" (p. 106).

For teachers, learning involves establishing cultural geographies that foster students participating as apprentices in the cultural practices believed important. In short, the responsibility for learning is distributed, just as the self is, among all the participants in the process. In addition, this perspective necessitates teachers developing a sensitivity to the narrative they create to describe their students and the process of learning. To take a distributed and storied view of the self requires a new narrative, one that renders all the participants responsible for what transpires, a subject I return to in Chapter 5.

THE RETURN OF SUBJECTIVITY

For decades, ordinary people have been told by philosophers, psychologists, physicians, and scientists that the only trustworthy or "true" knowledge is objective. From a positivist position, objective knowledge is considered trustworthy because it is free of the murkiness and fuzziness associated with subjective knowledge. The only good knowledge is seen by positivists as that gathered through the process of observation of what happens. In the case of human beings, objective knowledge is gained through cataloging their behaviors, personified by the behaviorist approach to psychology. From this perspective, the proper target of our endeavors is to discover the cause of behaviors in order to predict what is likely to occur in the future.

Vaclav Havel (1992), the poet and former President of Czechoslovakia, describes the positivist position as one in which man, viewing himself as at the pinnacle of life forms, is seen to be capable of objectively describing, explaining, and controlling — in an objective fashion — everything that exists, and of being in possession of the one and only truth about the world. Describing the Modern era during which Communism flourished, Havel argues that there was a "cult of depersonalized objectivity" in which the world was taken to be objectively knowable through what he terms "arrogant, absolutist reason." He contends that today, in post-Modern, post-Communist times, we are in a crisis of objectivism, searching for a means to deal with the dangers we face in today's world: AIDS, holes in the ozone, the greenhouse effect, and the depletion of the biosphere, to name a few.

Havel (1992) is particularly concerned with the technocratic and utilitarian approach to life. He fears that we are so linked to the cult of objectivity and statistical average we are allowing them to "annul human individuality." He suspects that the world of scientific representations has hidden the world itself, just as sociological statistics mask real people.

My personal experience reinforces Havel's contentions. In my graduate studies, my fellow students and I were told by our professors that we must learn to be objective in our approaches to understanding human behavior. We learned how to observe events and processes through describing what "actually" occurred, not what we thought happened, and certainly not what we interpreted from our observations. In describing a child's play, for example, we were taught to list the child's behaviors. We were cautioned not to impute intentionality onto the child, nor to imply any sort of emotional or feeling state. Our methods were guided by the tenets of empiricism: practicality, impersonality, and neutrality, all based in measurement. More important, these methods were them-

selves the tools of behaviorism, which concerned itself *only* with behavior, abandoning "all interest in consciousness, mental states, introspection, unconscious processes, and other 'ghosts' " (Robinson, 1976, p. 360).

The reasoning behind the strict focus on objective behaviors was that we had to ensure that we were describing the true behaviors of the other person. If we imputed intentionality or emotion, we were in danger of inserting our own biases into the observations. It was believed that the ultimate danger lay in an inability to predict future events if we injected elements of our own subjectivity into our observations and descriptions. Not only would we be unable to forecast accurately, we would be unable to locate the probable causes for behaviors, particularly disordered ones. In short, if we were not objective, we would lose our power to discover both the etiology for and probable future of a particular behavioral pattern.

We were particularly enjoined not to afford credence to what people *say* about what they do. What they say was considered degraded information because it was less important and less "real" than what they actually do. When we first began to focus our professional attention on the linguistic systems exhibited by our clients and students, we considered the language we were observing separately from its relationship to what its owners were actually doing. We were concerned with linguistic units apart from their situational characteristics.

Even in our more recent studies of language in which we describe the social-interactive contexts within which people use language, we tend to preserve our nonsubjective stance through an objectification of language. For instance, the classification of language into phonology, morphology, semantics, syntax, and pragmatics maintains a view of language as a system separable from its users. These categories reflect intellectual abstractions that have proven useful for analyzing and understanding language as a system. Nonetheless, the shortcoming of such a categorizing of language lies in the assumption that understanding how people use language and for what purposes can be achieved through analyzing their phonology or their semantics, to use just two examples.

In spite of recent attempts to treat classrooms and schools as cultural entities, situating children's behaviors and performances within the cultural variables of school (see Heath, 1983, for instance), many of us concerned with schools still attempt to maintain our objectivity as observers of the products of teaching and learning. We administer tests. We compare children's developmental characteristics with "normal" development. We rank the achievement test scores of individual students, individual schools and districts, and across state boundaries. We devise accountability systems based on quantifiable data. We focus on the cog-

nitive and the academic, while at the same time neglecting the personal and the social realities of school. What is missing is an accounting of people's actions and words — and correspondent meanings and stories derived from those actions — of those involved in teaching and learning.

The current interest in discourse affords an opportunity to transform our "objective" stance toward language. Gee (1989), for example, argues that what is important is not language per se, but "saying (writing)-doing-being-valuing-believing combinations." These combinations are what he calls discourses, or ways of being in the world. He goes on to say that a discourse is a sort of identity kit complete with the appropriate costume and instructions about how to talk, act, and write in ways others will recognize. According to Gee, these discourses are "forms of life which integrate words, acts, values, beliefs, attitudes, and social identities as well as gestures, glances, body positions, and clothes" (pp. 6, 7).

Gee (1989) proposes that we are "trained" into discourses, not through overt instruction, but by enculturation into the social practices performed by those who have already mastered them. He suggests that some of the discourses into which we are apprenticed include being (or enacting, as he puts it) an American or a Russian, a woman, a man, a student, a teacher, a factory worker, a member of the stock exchange, a student of literature, a member of a street gang, and so on. A critical part of each discourse includes what people say and how they say it, but these aspects of language are understood to be part of the whole discourse and inseparable from it.

Gee's ideas about discourse arise from the basic assumption that human action and meaning-making can best be understood as complex systems, dependent, not merely on what people do *or* say *or* believe, but on what they do *and* say *and* believe. Further, people are viewed as subjects — not objects — whose selves are distributed throughout their physical, historical, cultural, and social environments. Taking this perspective raises a critical question: What means can we use to talk about people as subjects? I contend that one of the most powerful means we possess is our subjectivity.

Havel (1992) suggests we need a radical change in our attitude toward the world. He argues for abandoning what he calls our arrogant belief that science and technology will rescue us. He calls for us to rehabilitate our abilities to experience our own unique worlds, to use our sense of justice, to see the world through others' eyes. He admonishes us to recover our compassion, wisdom, responsibility, and faith in the particular or individual and to set aside our desire for a "universal key to salvation." Havel's charge is for us to try harder to understand than to explain, to get to the heart of reality through individual, personal

experience. In short, he believes that human uniqueness, human action, and the human spirit must be rehabilitated.

Havel (1992) urges the return of trust in our individual subjectivity as the principal link with the subjectivity of the world. Through our own subjectivity, Havel contends, we will be reunited with our own thoughts and feelings, as well as the thoughts and feelings of others. Free of our desire for common denominators and single common equations, we will recover our ability to see the pluralism of the world and to construct solutions to our problems by unifying, through mutual respect, the diverse experiences of individuals.

CHANGING OUR STORY: WHY WE NEED A NEW ETHIC

In this chapter I have argued at length for including in our story-remaking efforts three principal components: a philosophy of abundance, a view of the self as distributed, and a return to subjectivity in our thinking. Perhaps more basic than these three components, however, is the need for a new ethic.

The old narrative I have been describing is outdated and detrimental, not only to students and their families, but to our concept of ourselves as a people. In our media, we are surrounded with stories of gloom: We hear that our schools are failing, we are falling behind other countries in gross national product, our students are lagging further behind in their test scores, and we are being outmaneuvered by other countries in the quest for market position. These stories carry a negative impact and serve to reinforce the pessimistic view that the United States is beginning an economic and cultural decline from which it is unlikely to recover.

Throughout these pages I have shown that the traditional approach to learning and intelligence has served to maintain an insidious and dangerous belief that some people are better than others because of their performance on standardized tests. This traditional approach is steeped in deficit and failure. In fact, for it to survive requires that we maintain a belief in deficit and failure. Otherwise, such an approach has little to offer. Without its pessimistic underpinnings, it is revealed as a means to maintain the status quo: Those with power control the lives of those without. A new narrative threatens the status quo. Nevertheless, a new narrative is required if we are to recover from our present pessimistic and exclusionary practices.

To begin, I propose the new narrative be grounded, not in science, but in an ethical approach to humans. Science and technology, though

they have produced astounding effects on our lives, fail to serve us in our most human of endeavors — our relationships with others, our feelings and emotions, our unique patterns of motivation and curiosity, and, perhaps most important, our attempts to teach our children with dignity and generosity. What is needed is an ethics suited to our everyday lives, one that arises, not from the abstract laws of logic or the principles of reasoning, but from actual human activity.

The need for an ethical approach to education becomes apparent when we consider the effects of the types of thinking most dominant in our schools: scientific (i.e., mathematical and logical) and technological. In a recent essay, Neil Postman (1992), a social critic, has described some of the major effects of science and technology on our culture. In a far-reaching discussion, he argues that "the uncontrolled growth of technology destroys the vital sources of our humanity. It creates a culture without a moral foundation. It undermines certain mental processes and social relations that make human life worth living" (p. xii). In short, our culture is adrift on a sea of reason and progress, left without recourse to the sorts of "right conduct" characteristic of ethical thinking and action.

What is of particular interest to us here is threefold: first, Postman's description of what comprises a technology; second, his description of how new technologies redefine our terminology and, consequently, the concepts underlying those terms; and, third, his discussion of the effects of the absence of moral foundation.

Looking at these ideas in turn, we begin with what constitutes a technology. In his discussion, Postman talks about technologies as varied as the following: the clock, measurement, television, orality, literacy, the printing press, the computer, the alphabet, the photograph, the painting, the stirrup, gunpowder, the match, the telescope, the mathematical sign known as zero, polling, credit cards, achievement tests, college courses, eyeglasses, and management, among others. His point is that technologies are tools that intrude into the belief system or ideology of the culture in which they are found. Technologies, because they represent intrusive ideologies, pose significant contradictions to a culture's world view, often raising spiritual or moral problems as the technology takes on a life of its own. In fact, Postman (1992) argues, technologies are based on the relatively recent idea that progress is a critical feature of life. New technologies are invented because we have come to believe that if something can be done, it should be done. Technology carries with it the profound acceptance of the principles through which invention succeeds: "objectivity, efficiency, expertise, standardization, measurement, and progress" (p. 42). Further, technological progress is founded on the idea that people are consumers — not citizens, but markets to be tapped.

An interesting example of Postman's point is the marketing and selling of standardized test instruments. Once intelligence, learning, and language, to name only three, were accepted as "real," they became fair game for test instruments. As I pointed out in Chapter 1, by the middle of this century, intelligence testing had become big business. The technologizing of intelligence was furthered through the development, marketing, and sales of test instruments designed to measure it.

The same technologizing phenomenon occurred with learning disabilities and language-learning disabilities. Before 1970, there were few measures of learning apart from tests designed to measure intelligence. The two language tests I used most often were the Illinois Test of Psycholinguistic Abilities and the Peabody Picture Vocabulary Test. Since then, as the concept of learning disabilities has become widespread and knowledge of language acquisition has undergone a significant expansion, test development has keep pace. In 1988, Stattler listed 83 instruments measuring learning ability and language development.

The second point Postman (1992) addresses is the issue of how technologies affect our ideas of what constitutes reality. Of the examples he uses to illustrate, two are particularly interesting to our purpose: measuring intelligence and assigning marks or grades to student work. Postman's point in using these examples is to show that the assignment of quantitative values to human thought or activity constitutes a major step toward constructing a mathematical concept of reality, one which asserts that a number can be given to the quality of a thought as well as to the quality of "mercy, love, hate, beauty, creativity, intelligence, even sanity itself" (p. 13). He goes further to assert that this technology — the assignment of a number to qualtities — has resulted in the belief that without numbers, people cannot acquire or express authentic knowledge, a development I pointed out in an earlier chapter.

Further, Postman (1992) states, every technology has embedded in it an ideological bias, "a predisposition to construct the world as one thing rather than another, to value one thing over another, to amplify one sense or skill or attitude more loudly than another" (p. 13). This ideological bias, rooted in every technology, silently spreads until, as in the case of school children, those who think in ways not consonant with the ideological bias are deemed failures. Those whose thinking coincides with the predisposition favored by the technology in question receive greater power and freedom, while those whose thinking is different from the ideology have their power and freedom reduced.

Through our acceptance of a numeric reality, we assume we can describe virtually anything using numbers or quantities, including qualities of living things. In assigning numbers to represent living processes,

we seriously restrict our view of what it means to be constantly changing, to be in flux, to be in process — in short, we restrict our ability to understand what it means to be alive. For instance, when we measure intelligence, the assignment of a score to a child's answer to a question assumes there exists a correct way to respond. I recall observing one particular child as he responded to the Comprehension subtest of the Wechsler Intelligence Scale for Children (WISC-R). When asked what he would do if he found a wallet lying in the street, the boy, who had lived most of his eight years with no permanent home and with no one to care for him except his 12-year-old brother, responded: "Take it to the store to buy food." This response netted a zero score, which reflected nothing about this particular boy's experiences or the meanings he constructed from them. His response did not fit into the scoring system for the test, and his perception of meaning was therefore not represented through the score that was assigned to represent him.

A more insidious consequence of quantifying human behavior is illustrated by the public opinion poll. In an attempt to judge the public's opinions about how presidential campaigns are funded, the NBC News and *The Wall Street Journal* conducted a public opinion survey in April, 1992 (Holmes, 1992). Voters were asked about the spending of H. Ross Perot, a billionaire making a run for the presidency by using his own money to support his campaign. The purpose of the poll was to determine the public's view of politicians' using funding from special interest groups (who contribute to campaign funds) in comparison with spending their own money. The survey asked voters if they felt Mr. Perot's spending $100 million on the campaign was a good thing because he would not have to raise funds from special interest groups, or a bad thing because he was trying to buy the presidency.

As with any public opinion survey, there were only four acceptable responses: yes, no, some of both, or not sure. The results of the survey were clear. Fifty-one percent said it was a good thing, 33% said it was bad, 6 % said it was some of both, and 19% said they were not sure. However, with only two choices to which to respond, the respondents' answers reflect very little, if any, of the complexities surrounding the issue. The results, reported as clear-cut percentages, offer little information about what voters think of anyone spending $100 million on a run for the presidency. Nor do the reported percentages indicate what those voters meant who reported they were not sure.

In this poll, a binary choice was presented to a group of voters, whose responses were pooled in order to calculate the proportion of responses falling into one of four categories. While the results may be reliable, the question is, Are they useful? As Postman (1992) asks, does this

information enrich or demean the electoral process? What do we as citizens gain — or lose — from learning this information?

The third major issue Postman addresses is the effects of science and technology on our culture. In his study of these effects, he concludes that the most profound is that alternative ways of living and believing become invisible and irrelevant. Because our technologies so permeate our consciousness, we are blind to the possibilities of other narratives that might better serve our cultural and societal needs. How does this happen? According to Postman, we have come to believe that technical calculation is superior to human judgment, rendering us incapable of developing modes of operating founded on human perception and judgment.

Moreover, Postman asserts, we now accept that what cannot be measured does not exist or has no value. Measurement and quantification have become real in our minds, leaving us struggling to understand such human qualities as love, mercy, relationship, and intelligence. This line of thinking encourages us to accept the notion that subjectivity is an obstacle to clear thinking; only reason and a rational approach are valued. Anything else is viewed as lax, ambiguous, and complex. It is not surprising, according to Postman, that the prevailing view today is that the affairs of ordinary people are best guided and conducted by experts —that is, that ordinary people are lacking in the ability to know how to proceed when, for example, their child is failing in school, or when their parent needs assistance or supervision in daily living. This view is simply a variant of the belief that only professionals can do things properly.

Postman has put a voice to what many of us feel: We are suffering from our technologies and from the incessant measurement and quantification stemming from them. Our technologies and our science offer cold solace as we seek to make meaning for ourselves in our everyday lives. We pursue an alternative that encompasses our human qualities, those sometimes elusive aspects of ourselves that nonetheless inform our thoughts and actions in our everyday lives. The current narrative, steeped in technology and reason, excludes contact with the intimate and contradictory parts of ourselves. It relies on a logical and rational explanation for our lives. It privileges reason and objectivity, while ignoring, even subordinating, passion and subjectivity.

On a more personal level, I have struggled throughout my career with the technologies prevalent during different periods. For instance, in the 1960s, when I began teaching, the behaviorist movement was in its heyday in education. During that time, I spent considerable energy defining an alternative approach to instruction.

I felt acute discomfort with the behaviorist philosophy because of its insistence on the absence of any contribution, other than reaction, by the organism itself. Such a view was antithetical to my own teaching experience, which always seemed to me to show grounding in the relationships that grew between my students and myself. As I observed myself as a teacher, I realized that everything I did as a teacher arose from my belief that my goal was to share meaningful and relevant learning experiences with my students through cooperative ventures.

In developing my own narrative of teaching (and, consequently, of learning and instruction), I continue to observe that the prevalent narratives, based on student performance and competition, are devoid of reference to the processes I (and others) deem most important — teaching and learning. Because teaching is first and foremost a moral act, that is, an act of caring and commitment out of which learning emerges, any narrative describing the teaching process must include a system of ethics describing moral or right conduct.

AN ETHIC OF CARING AND COMMITMENT

The best description I have found to explicate the view that teaching arises from an act of caring and commitment comes from Nel Noddings, a philosopher who has delineated an ethical system based on caring (Noddings, 1984). Nodding's system is unique in its approach. Eschewing the mathematical view of the world, she proposes a system of ethics based, not on rational argument or the principles of moral reasoning, but on the natural receptive rationality of caring. She describes caring as a complex, intricate, and subjective entity: having a regard or inclination toward someone or something; being in a state of mental suffering or engrossment; or being in a burdened mental state — anxiety, fear, or solicitude. At bottom, she argues, all caring involves engrossment even though it may lie latent or endure for long periods without being expressed.

In contrast to most ethical systems, Noddings is concerned with receptivity, relatedness, and responsiveness. She does not imply that logic or hierarchy are to be discarded, simply that they are not the primary source of human action and decision-making. In her view, logic and reasoning are used in the service of ethical behavior. She contends that moral decisions, such as designing instruction for students, are made in real situations and are qualitatively different from the solutions of problems guided by principles or laws. Further, she states that her ethics is a sort of procedural knowledge and does not claim "to present or seek moral knowledge or moral truth" (p. 3).

Noddings' ethic locates the source of ethical behavior in human emotions, specifically what she calls the human affective response. Without invoking sentiment, she shows human affect to be at the heart of ethical behavior. Generally, relationship is taken to be developmentally basic to ethical behavior, while the caring relationship in particular is seen as ethically basic. Saying that humans recognize human encounter and affective response as a basic fact of human existence, Noddings sees ethical behavior arising from the reciprocal, but often unequal, contributions of both parties in the relationship.

In Noddings' view, meeting others morally, that is, with dignity and respect, occurs as a result of natural caring. Because we all long for caring, that is, the natural caring we consciously or unconsciously perceive as good, we are motivated to be moral. Because the caring attitude is universal, we are all motivated to relate to others in a moral way. As teachers, then, our efforts must be directed toward maintaining the conditions that will allow caring to flourish.

From this ethic of caring, the teacher does not impose her ideas of what is right on her students. Rather, her caring ethic creates a morality of confirming rather than controling, diversity rather than rigidity. Too, this ethic generates moral sources rather than simple sanctions or principles, allowing the teacher to approach each student within the context of the particular circumstances surrounding every learning situation. The teacher-student relationship becomes paramount, superceding curriculum. In short, in every instance, the student is more important than the curriculum. The teacher's responsibility is to confirm the student in her or his learning regardless of any external guidelines developed apart from each particular learning situation.

Noddings' rejection of ethics of principle arises from her assumption that the principles of ethics are always ambiguous and unstable: As she puts it, "[W]henever there is a principle, there is implied its exception and, too often, principles function to separate us from each other. We may become dangerously self-righteous when we perceive ourselves as holding a precious principle not held by the other. The other may then be devalued and treated 'differently' " (1984, p. 5). An ethic of caring does not allow devaluation and "difference."

Additionally, Noddings argues that each human encounter is unique and dependent on the subjective experience of those involved. The conditions in such encounters are rarely sufficiently similar for a teacher to declare that others must do the same thing she has done — even though the universal caring attitude underlies every teaching situation. In other words, while there is a universal condition, caring, there can be no universal set of principles for teachers to follow in their own interac-

tions with their students. Each must proceed according to her own judgment about what is best in each situation. Her teaching interactions with her students are informed by the fact that human beings want to care and be cared for, and she assumes personal responsibility for the choices she makes about how to proceed with her students. In fact, Noddings suggests that what is most valuable in the teaching-learning relationship cannot be specified, and certainly not prespecified.

As I mentioned earlier, Noddings' ethic is based in relationship. The "one-caring," that is, the teacher, is receptive to her students, is engrossed in them. She listens to them and takes pleasure or pain in what they recount. Her attitude toward her students is one joint endeavor through which they explore subjects with boredom as well as fascination, with significance as well as silliness (1984, p. 20). The teacher's purpose is enhancement of her students, the "cared-fors," through stepping out of her own personal frame of reference and into her students'. Her actions are governed by affection and regard and are, as a consequence, varied. Impersonal logic is replaced by faith in and commitment to the caring relationships in which she engages.

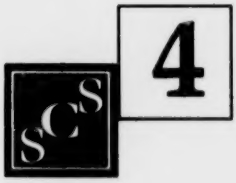
This is not to say that the teacher does not use logic in her thinking, nor that she throws reason to the wind. On the contrary, she utilizes all of her thinking processes in deciding what to do on behalf of her students. However, because the rational-objective mode is abstract, the teacher suspends it in favor of subjective thinking and reflection, which afford her the time and space of *feeling*. She uses the rational-objective mode to serve her ethical affect. In so doing, she retains her commitment to the ethic of caring and to her responsibilities for her students' welfare.

Four major conclusions emanate from the caring ethic I have described here: (1) everyone is taken to be smart and capable of learning; (2) everyone is seen to be motivated by unique and often different things; (3) individual variation is accepted as normal, not as a disorder; and (4) discovering each person's individual story is the starting point for designing meaningful and relevant instruction.

What these conclusions insist is that the teacher receive her students, seeing and feeling with them what they see and feel. Her attitude toward them is to offer her attention, not her manipulations. As Noddings (1984) reminds us, she offers to share her motive energy by putting it at the service of her students. Without evaluation or assessment, she enters the world of relationship with her students to discover how each is smart, what each finds curious and engrossing, and what questions each poses about the world. She enters her students' world where their personal histories guide her decisions about how to proceed in her instruction.

To follow the ethic of caring and commitment is to alter radically our story about school, learning, and instruction. In the new narrative, testing and measurement become processes for determining each individual's growth in learning. Curriculum is individualized. Teachers design instructional materials and procedures for individual students. Students explore ideas relevant to their everyday lives. School is a place where everyone — teachers, students, families — feel heard and respected. The story centers on the validity of each person's experiences and perceptions.

At this point, you may be saying to yourself, "OK. This sounds good, and I can relate to what she's saying, but what is an example of this new story?" In the next chapter, I offer a new narrative that tells us how people are smart.



A New Narrative: How People Are Smart[1]

Throughout these pages I have been urging the adoption of a new narrative, grounded in caring commitment and expressed affirmatively, to explain how humans are smart in their everyday lives. I introduced evidence, the bulk of it from education, to show why I think we are in need of a different narrative. I argued that we base our new narrative on an ethic of caring and commitment, and I recommended that we adopt an optimistic explanatory style in our telling. In the following paragraphs, I propose what I consider to be the skeleton of the narrative — a description of how people are smart.

To begin, I recommend we throw out our tired concepts about intelligence. Replacing *intelligent* with *smart* provokes us to think differently. Rather than automatically thinking about how intelligent people are, we think of how they are smart — that is, we think of how they construct their lives to derive meaning. Such an approach leads naturally to caring and commitment, and it fosters an optimistic explanatory style based on abundance.

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To develop an explanation of how people are smart, I follow a line of thought developed by Howard Gardner in 1983 when he proposed that human intelligence be viewed as multifaceted rather than unitary. Originally involved in studying what motivates people from various cultures from around the world, Gardner discovered several themes, or patterns. He further uncovered evidence that these same patterns could be discerned in the developmental patterns followed by growing children, by those persons suffering from age-related declines, and by those considered idiot savants and child prodigies. In addition, each pattern carried with it either an existing symbol system (e.g., musical notation, dance choreography) or the capacity for being represented by a symbol system. Satisfied that the patterns showed sufficient evidence of stability, he proposed that they be considered multiple forms of human intelligence.

What struck me about his concept, however, is that it lends itself so readily to my purpose of developing a new narrative to describe how people are smart in their lives regardless of culture, age, gender, education, or economic circumstance. Borrowing from Gardner, I have developed a descriptive system that allows people to describe themselves or others in words and graphs, in order to discover how they learn, play, work, engage in relationships, and focus on health — in other words, to discover how they are smart in their everyday lives. I have diverged considerably from Gardner's 1983 descriptions in order to develop a system that is consistent with the ethic of caring and an optimistic explanatory style. For those who know Gardner's work, the description I give below will be familiar in its general contours while perhaps unfamiliar at the level of specific detail.

I propose that all humans are smart in at least eight ways. While various cultural groups attach different values to the eight patterns, all eight nonetheless exist cross-culturally. I have developed a set of guidelines to aid understanding of the descriptions that follow.

First, even though these eight patterns are described separately, the boundaries between any two of the categories are deliberately fuzzy. One way of being smart may overlap another. An example would be the mathematical patterns expressed in certain musical forms, such as those employed by J. S. Bach. Another example would be the mathematical and logical expressions captured by M. C. Escher in his drawings.

Second, there may be more or fewer than eight ways of being smart. Eight is not a magic number, but it does capture a significant amount of how we function as humans. These eight categories work for me because they are just simple enough for me to remember and talk about, and, at the same time, they are just complicated enough for me to see the complex interactions among the categories.

Third, my descriptions are word-based, which sometimes makes it difficult to imagine thinking without words. Nevertheless, it is important to remember that, except for the linguistic way of being smart, the other ways of being smart do not rely on words. In fact, they are characterized in part by the absence of words. For instance, some friends of mine who are musicians can practice for several hours together and use only minimal oral language to talk about the music itself. They play a riff, look at each other, raise eyebrows, shrug shoulders, give pained expressions, and say, "No. Let's try it again, but let me open it this way," proceeding to play a different introduction. Their primary communication during these practice sessions is through the music, not the words.

Fourth, although I have followed Gardner's original names for each of the eight, I do not consider the names any more significant than the number eight itself. I am unhappy with three names in particular: linguistic, spatial, and bodily. The others work for me, but these three seem unwieldy and formal. However, because I have not found substitutes that convey the appropriate and precise meaning these carry, I continue to use them.

Fifth, the descriptions are not arranged in any particular order. I do not mean to imply through the ordering of the descriptions that any one of the eight is any more important than any other. However, it is also important to note that different cultures will hold unique values for each of the eight. Even though all cultures exhibit each of the eight ways of thinking and acting, each culture retains its unique mix of emphasis on different aspects. American culture, for instance, has privileged the linguistic, logical, and mathematical intelligences more than the others.

Last, people can exhibit characteristics of any of these eight intelligences through appreciating that way of thinking and acting, or through performing in that way. Either appreciation or performance, or both, is sufficient evidence of any particular intelligence. An example is a friend of mine who is most clearly a musician. Although she performed at one time in her life, she no longer sings, but she listens to music through most of her day, she thinks in music most of the time, and she likes spending time with friends who are musicians so they can play music and talk.

EIGHT WAYS OF BEING SMART

Using the five guidelines described in the preceding paragraphs, I have developed descriptions of the eight ways of being smart:

- interpersonal;
- intrapersonal;

- linguistic;
- spatial;
- logical;
- bodily;
- musical;
- mathematical.

Although I used the broad concepts of Gardner's multiple intelligences as guidelines, I focused my descriptions on what I have observed about ordinary people as they live their everyday lives. Thus, each of the eight descriptions is accompanied by a vignette about one of the many people I have interviewed in my research. In keeping with my desire to develop a personalized narrative to describe how people are smart, I use the second person pronoun *you* to describe the eight smart patterns.

Interpersonal Pattern

Interpersonal thinking is used to understand others' feelings, desires, and ideas. Interpersonal intelligence is required to understand others as separate from you and as having motivations, intentions, and feelings from which they act. To see another person as a unique personality, you use interpersonal intelligence. Interpersonal intelligence allows you to see others as separate beings and to characterize them, for example, through their actions, body language, looks, dress, manner of talking, and ease of interacting.

An important aspect of interpersonal intelligence is being able to take others' points of view. Much of your interpersonal intelligence relies on your ability to engage in communicative interactions with others. How you use language to interact with others is a crucial part of functioning in your own culture, and it interacts somewhat with your linguistic intelligence.

Interpersonal intelligence emerges from a complicated set of factors, most importantly the value systems in your own cultural group. When certain characteristics are valued by your culture, more positive value is placed on people exhibiting those characteristics. Conversely, to the extent certain characteristics are not valued by your cultural group, people showing those same characteristics are devalued. Interestingly, the interactions between your own perceptions and the values regarded highly by your cultural group affect not only your relationships with others, but also how your self-concept and self-esteem develop. To the

degree that your intellectual strengths match what is valued by your cultural group, you will most likely develop a more positive self-concept than if your cultural group does not value your intellectual strengths.

If you have developed strength in interpersonal intelligence, you usually know how to shape your actions across contexts, modifying your language, appearance, and actions accordingly. You are able to make relevant and appropriate conversation in a variety of situations, and you are typically able to understand a multitude of beliefs, desires, and intentions. You recognize the resources of others and can mobilize them in mutually satisfying ways. In addition, you are able to recognize how to engage others in nonthreatening ways to solve problems or to resolve conflicts.

A friend of mine, Carmella, is strong in interpersonal intelligence. She enjoys being around other people, preferring most of her activities in a social group rather than alone. She likes to interact with her friends and peers and seeks opportunities to talk to people, including people she does not know well. She says she finds herself watching and listening to other people, noticing how they interact and relate to each other. She particularly enjoys learning the conventions different cultural groups use in their interactions with each other. For example, in her native culture, friends never talk at the same time. Each takes a turn while the others listen attentively and with respect. Two business acquaintances of Carmella's, both from different cultural groups, fascinate Carmella because of how they talk at the same time, finishing each other's sentences, jumping into a new turn, and using a rapid rate of speech.

Carmella is regarded as a good friend by those who know her. Her closest friend, Anna, says Carmella listens carefully to her, encourages her to explore her own ideas and feelings, and always supports her when she feels low. Louis, one of Carmella's business associates, describes Carmella's administrative skills in terms of her prowess with people. He admires her ability to attend to each person in a group while at the same time focusing the group on its objectives and enabling the group to achieve its goals. Louis also speaks admiringly of Carmella's knowledge of resources and her ability to mobilize people toward a cause. For example, when Carmella assumed the position of principal of an elementary school not long ago, she organized the surrounding neighborhood, including many people with no direct association with the school, for a day of cleaning the school grounds and buildings, painting, and landscaping. Louis remarked that only Carmella could have achieved such a feat — including the presence of a local television camera crew to report on the event.

When I talk with Carmella about how she sees her own interpersonal intelligence, she describes herself as being drawn to people. She reports that her childhood memories are primarily of people and relationships among them. She remembers major events in terms of the people who were there and what they did. For example, she recalls a particular Thanksgiving when she was 9 or 10 years old. She remembers a favorite aunt and uncle as being unusually secretive and, as she puts it, "giggly." She watched them closely throughout the day, trying to discover the cause of their unusual behaviors. When Carmella asked her mother later if she had noticed, her mother was surprised and wanted to know everything Carmella had observed. The behaviors Carmella described to her mother 30 years ago are still vivid in her memory. She recalls being unsurprised a few days after the Thanksgiving events when her aunt and uncle announced they were leaving shortly to serve in the Peace Corps in Nigeria.

Intrapersonal Pattern

Intrapersonal intelligence is the type of thinking you use when you are aware of yourself and when you are thinking about yourself and your motivations, feelings, thoughts, intentions, and emotions. Intrapersonal intelligence is involved when you use your own experiences, as well as your perceptions of how others view you, in forming your self-concept. The value you place on yourself, called self-esteem, emerges from the emotions, feelings, and thoughts you have about yourself.

You use intrapersonal intelligence to pay attention to the emotional aspects of events, relationships, and interactions. You are using intrapersonal intelligence when you are aware of your own feelings and responses, and when you see patterns in your own behaviors across contexts. In differentiating your feelings, perhaps through labeling them (but not necessarily), and incorporating them into other symbolic codes such as myths and religious doctrines, you are utilizing your intrapersonal intelligence. Intrapersonal intelligence also comes into play when you use your feelings to guide your own behavior, observe yourself in interaction with others, and predict how you are likely to respond under specific conditions. You also use it in knowing how you are similar to and different from others and in understanding that your values and beliefs reflect your models of human functioning.

In exhibiting intrapersonal intelligence, people show a capacity for mobilizing their own resources, completing long-term projects with little or no supervision, and for working on their own. To the extent people

are strong in intrapersonal intelligence, they are likely to be able to describe themselves across the other intelligences. Because they observe themselves in various situations, they usually know their strengths and weaknesses as learners and thinkers regardless of domain.

It is important to note the influence of cultural values on the development of intrapersonal intelligence. In the West, where value is placed on the self, self-awareness and the development of the self are commonplace. In other cultures, intrapersonal intelligence may take other forms. For example, in some cultures, the self is seen primarily in relation to the cultural system as a whole. Strength in intrapersonal intelligence may be defined in such cultures as the manner in which the self integrates with the cultural body comprising the larger society.

When I interviewed Christine, a 40-year-old university professor, she described herself as curious about a wide variety of subjects, eager to learn whatever she can about theater, music, other cultures, history, art, film, and dance. She sees herself as highly motivated to learn and to know about the people and activities of the world. When I asked her where her motivation comes from, she related that throughout her life she has valued herself as capable of learning and growing and that her motivation seemed to emanate from her concept of self-worth. She reported spending considerable time reflecting on her thoughts, actions, relationships, and feelings. She had spent time in psychotherapy to learn about her behaviors and patterns and how to achieve what she believes to be a healthier manner of living.

One of Christine's colleagues, Paul, who is also a close friend, described her as a flexible thinker. He described several situations in which, faced with last-minute changes in plans, Christine immediately saw the implications and incorporated them into a new plan of action. Paul's assessment of Christine is that she is an independent person who, while she values others' opinions and beliefs, follows her own path. He hastened to tell me, however, that Christine seems genuinely respectful of others' beliefs and values, and, though she may disagree, usually does so in a nonthreatening way.

One of my observations of Christine is that she exhibits two primary characteristics of intrapersonal thinking. She is willing to make mistakes, and she is willing to be wrong or not know how to do something at first. She allows herself to be a beginner, to take her time learning something new. She seems to delight in new opportunities to learn. In learning to skate on in-line skates, for instance, Christine was an eager student. She proceeded only as fast as her ability allowed, without denigrating herself or wanting to get better faster. She was comfortable with her achievements and set reasonable expectations for herself as she progressed.

Another intrapersonal characteristic I notice about Christine is that she treats herself with respect. She pays attention to the food she eats, to the amount of sleep and rest she requires, and to her body's need for exercise and fresh air. Christine schedules her time so that she has adequate time for maintaining her physical and mental health. Like most of us, she feels the pressures of scheduling too many appointments or having too little time for some of the things she would like to include, but overall, she manages her time so that she perpetuates her good health.

In addition, Christine recognizes her own needs to be alone, as well as her needs to interact with others. She and her living companion have arranged a loose schedule for being home alone for brief periods of time so that each can fulfill their needs for privacy and solitude. While these two enjoy each other's company and seek interactions with each other, they also recognize their needs for solo retreats.

I noticed the extent of Christine's intrapersonal orientation when she summarized her life in terms of her personal growth. She told me, for instance, that during her childhood she had been very lonely and felt alienated from her family, while her college years were exciting because she felt a new world opening to her. She further described her life in terms of how she felt during various periods, such as during graduate school, her first job, and her current position. While other people I have interviewed described their lives in terms of their relationships (characteristic of interpersonal thinking), for instance, or in terms of the chronological facts (characteristic of logical thinking), Christine's descriptions centered on her emotional growth and progress. In other words, she was strongly oriented to intrapersonal thinking in her reporting.

Christine's orientation toward intrapersonal thinking surfaced again when she told me about her reactions to films, plays, dance concerts, and other artistic events. She mused that her first reactions are almost always feelings, such as sadness or joy. Only after she has felt her emotional reactions is she aware of her response to the structure or style of the piece, or to the artistic rendering of the story. Her first engagement with a piece of art is emotional, which is then followed by linguistic, spatial, logical, or bodily responses.

Linguistic Pattern

Linguistic intelligence can best be thought of as the ways by which you think of things by using their names and how you make statements and tell stories through naming. Linguistic intelligence involves a way of

thinking filled with conversations, words, meanings, grammatical constructions, alliteration, metaphor, humor, and the like.

You use linguistic intelligence when you manage the elements of language. For example, when you write a letter, you focus on appropriate grammar, sentence structure, and style. When you write a note to yourself, you do not worry about these aspects. On the other hand, when you tell or write a story, you tell it from someone's point of view. You manage the story structure, characters, events, and conversations to construct the tale. You may also take pleasure in the sounds of words and phrases.

As a reader you use linguistic intelligence to determine what the plot is, who the characters are, what their motives are, and whether there are any hidden messages included by the author. While reading, you enjoy the linguistic structures of words, sentences, and phrases, and you also enjoy unusual usages and variations.

For people who are linguistically oriented and who engage in any sort of public speaking, an important component is to practice performing their speech, focusing on pronunciation, clarity of articulation and thought, and the emotional impact of their message. They attend to underlying intentions and how best to convey them to a particular audience. They design vocabulary, sentence structure, and allusions differently for each audience, and they incorporate those references they know their audience will be able to understand.

It is important to note that most people develop sufficient linguistic intelligence to communicate through using language. However, thinking linguistically is not the same thing as using language to communicate. Thinking linguistically should be thought of as focusing on and enjoying the linguistic — attending to the sounds and meanings of language, how people use it to communicate, and the humor and playfulness of language. When you are thinking linguistically, you almost automatically pay attention to what words mean, how sounds are related, how to talk differently to various listeners, and so on. In this mode, linguistic thinking seems natural and obvious.

However, many people use language to communicate without giving much thought to the words, sounds, meanings, or nuances of the language they are using. They focus less on the linguistic elements than on getting the message across, or on watching the other person's reactions. These people are most certainly using language, but they are not paying attention to how. Thus, they are not thinking linguistically at these times. I do not mean to imply that there are some people who do not think linguistically. What I mean is that some people think less linguistically than they do in other modes.

Raymond, who was 78 when I completed my interviews with him, told me he had always been fascinated with words and with stories. Raymond's family had immigrated to the United States from Ireland in the middle of the ninteenth century. Being Irish was something Raymond believed contributed to his love of words. Raymond was proud of being the second in his family to finish high school (his older sister was the first) and told me he was "a reading fool" from the time he could hold a book. He continued to read throughout his life, favoring Westerns and nonfiction about animals, particularly horses, which he had raised his entire life.

Raymond's family told me he loved words. He enjoyed finding new words to use and would surprise one of the family with his new discovery. He frequently queried his family about the exact meanings of words, or about the precise pronunciation, especially if anyone deviated from what he thought to be correct. And, they reported, he was usually right.

Raymond's greatest love is for stories. Family gatherings almost always consist of storytelling, usually led by Raymond and his grown children. Of course, the grandchildren and great-grandchildren are learning to tell stories of their own and are encouraged by Raymond to include a twist of humor or irony to make them interesting. The stories I heard were delightful in their structure as well as their content.

Raymond also told me that most of the time he thinks in stories, as if he is telling what he is thinking to someone, usually someone in his family. He constructs his experiences into narratives so that he can tell his family about what he has been doing and what he has seen during his experiences. For instance, following his 34-mile daily roundtrip into town for lunch and errands, Raymond recalls what happens for his wife. He tells her, in a narrative form, who he saw, what they said and did, and what he said and did. He tells her about the road conditions and the animals he saw along the way, as well as any crazy drivers from town who were driving too fast for the tricky road past their place.

Raymond's family told me that he has stories for almost every holiday they can remember since they were children. They believe he remembers major events in terms of the stories he has constructed about his experiences and observations of those events. His memory of the Japanese invasion of Pearl Harbor is a story about the horse he had been riding when he heard the news.

Something I noticed about Raymond was his delight in playing with words. He frequently made puns and used double-meaning words. He asked me about the meanings of several words with which he was initially unfamiliar; his grasp of meanings was immediate and long-lasting.

Once he heard a word and what it meant, he incorporated it fluidly into his own repertoire. I often heard him use new words within a few minutes of learning about them.

Raymond also told me that he heard words more than he heard other sounds, such as music. He told me he liked music but that, given a choice, he'd take stories any day. He related that in restaurants or stores, he heard people's voices and strained to hear what they were saying, only later realizing that he was straining because there was music playing. He told me about how, as a boy, he would go downtown to Union Station just to hear the announcements of the arrivals and departures of the trains. He recalled radio stories and announcements of which he was particularly fond, such as the old Lucky Strike cigarette advertisements or old episodes of The Shadow.

Raymond told me of how much he enjoyed verbal comedy, especially satire and parody. He admired the quick wit of comedians, especially some of the younger ones who relied more on linguistic humor rather than on slapstick or vaudeville. Raymond himself showed a quick wit, producing ironic observations or satirical comments.

Perhaps the only linguistic form with which Raymond was not comfortable was writing. He told me he wrote letters most of his life but preferred using the telephone if he could. He told me he had enjoyed writing in school until his teachers tried to make him use his right hand to write. After that, he told me, he just did not enjoy it much until he got into high school and reverted to using his left hand again. By then, he thought, it was too late, and he never developed much ease with writing. He noted proudly, though, that his younger daughter clearly enjoyed writing and continued as an adult, writing poems, stories, plays, and fables. Raymond expressed appreciation for his daughter's ability to switch among the different styles of writing, and he told me he wished he had had more opportunities to learn about poetry and drama when he was younger so that he could be more comfortable with them.

Spatial Pattern

When you engage in spatial thinking, you focus on the physical attributes of your surroundings. You concentrate on what you observe of the physical world, primarily through using the six senses: vision, hearing, balance, temperature, smell, and movement. Of course, you may also focus on your memories of the physical world, using visual images or pictures as you think.

There are various aspects of spatial thinking. The most obvious is the spatial world of geography. You use spatial thinking when you move through the physical world, relying on your senses to provide information about the landscape. You develop a knowledge of the geographic, and you may even carry a set of pictures about geography in your head.

Another spatial aspect of thinking is how you interact with nongeographic spatial information. For example, playing cards can be displayed in various arrangements that vary according to the game being played. Knowing the existing arrangements in each player's hand allows you to know which card to play next. Another example is chess. The number and arrangement of the pieces on the board indicate certain relationships and consequences. Your ability to visualize various spatial arrangements forms a basic part of your expertise in chess.

A less concrete spatial way of thinking is involved when you use visual symbols such as maps, blueprints, or graphs. Spatial notation is used in bridge books that display typical hands, and newspapers routinely describe chess tournaments by showing visual symbols representing the pieces and where they stand on the board at any given point in the play. Photographs and graphic drawings are also ways of showing spatial information.

A more abstract aspect of spatial thinking is involved in understanding geometric concepts such as squares, cubes, arcs, and angles. To understand and manipulate these more universal spatial properties, you form mental images that you then twist and turn, examining them from every possible aspect. Such thinking might involve visualizing how to produce a computer-generated graphic showing a three-dimensional figure, for example, or knowing which of a series of line drawings represents a stack of cubes from any particular angle.

Fashion, interior design, carpentry, and the visual arts constitute another example of spatial intelligence. People engaged in the visual arts use various media (e.g., camera, paintbrush and paint, woodworking tools, sculpting knife) to produce spatial effects. Some of the resulting visual effects are color, symmetry, light, depth, perspective, balance, movement, among others. If you focus on fashion or interior design, you are probably aware of some of the same aspects and use them to develop ideas or feelings through clothing, furniture, room design, or hair styles. If you enjoy woodworking, you are likely to enjoy designing products such as chairs or cabinets and focus on aspects such as balance of parts, color, texture, and size.

Larry is a friend who describes his strength as spatial thinking. In our conversations, he told me he is attracted by visual patterns, espe-

cially color and the relationship of objects in space, for example, furniture in a room or buildings in a downtown area. He is also attracted to texture and line, as evidenced by his clothing. Larry's clothes are usually chosen for the ways in which the colors, textures, and lines of the fabric interact. He chooses a tie, for example, to pick up a shade from his shirt or socks, and he selected a recently purchased coat primarily because, as he says, it "flowed to the perfect length."

Larry is conscious of other people's clothing as well as his own. He remembers major events at work (such as when the a meeting was called to tell the managers the president was being forced out of the company) by what his colleagues were wearing — which he described to me in detail. His comments indicate his fascination with particular images. He talked about a friend's experimentation with the Southwestern look and another's phase with urban punk. Larry himself enjoys trying different images in his dress, most recently the urban Italian look.

Even in our casual conversational setting, Larry's dress showed his attention to the spatial. He typically wore jeans or slacks matched by a shirt and sweater of complementary color and fabric, with socks and shoes selected to complete the outfit.

Larry is also interested in interior design. He has decorated his house in a colorful and bright manner. He described his living room as large, with dove grey carpeting, lighter grey sofas with a shiny smoke grey stripe, a grey streaked marble coffee table supported by glass cinder bricks, and two large oil paintings on two perpendicular walls. He described the paintings as brightly colored with pink, salmon, coral, grey, black, blue, and light greens.

Larry told me about the master bedroom, which is on an upper level of the house. Because it overlooks a wooded area, he had the primary window enlarged to cover almost the entire wall so that he could see the outdoors and to lighten the room. He described the wall coverings and bed clothing in terms of color and fabric, and commented that the bathroom colors (including those of the towels) complement those of the master bedroom.

Perhaps Larry's strongest spatial characteristic is his love of the visual arts. A painter himself, he plans vacations to see his favorite paintings, as well as those typical of particular so-called "primitive" people. Though he does not make his living as a painter, he spends considerable time painting, as he put it, for the sheer joy of it. His paintings vary in style, content, and medium. He said he enjoys trying new approaches based on others' paintings he has recently seen or studied.

Larry is also an amateur photographer. He told me he works mainly with color, though he has done black and white at different times in his

life. He said he finds himself alternating between painting and photography, though he typically paints more frequently than he shoots photographs. In looking at some of his photos, I noticed the striking composition and clarity. The photographs I saw were landscapes and cityscapes. Both showed an eye for the unusual angle and light. A black and white shot of Venice, for example, showed a long perspective along a canal lined with houses. Another, a color print of a southwestern adobe structure, was a close-up focused on the interplay of shadow and light brought out by the slightly curving lines of the building.

Larry told me his thinking usually consists of visual images. Driving cross-country, for example, he sees the landscape in terms of its potential for photography or painting. If he has no opportunities to paint or photograph what he is seeing, he will create a series of visual images that he later attempts to render into a painting. Describing a recent car trip to me, Larry gave details about four images he plans to paint. When asked about gas mileage and distance traveled, he told me he had no idea —his mind was on the visual images he was seeing.

When I asked Larry about his favorite games, he listed card games and chess. He also told me he enjoys video games and critiqued several in terms of their graphics. He told me he remembers cards played by seeing the graphic depictions of each card, and he said he has two favorite card decks chosen because of the visual details on the cards. He reported playing chess, not so much by employing strategies as by seeing pictures of potential moves and board scenarios.

Larry also enjoys film. Not surprisingly, he focuses on the visual details, particularly the cinematic aspects such as the photography and the use of visual metaphors and references. He told me he often watches particular movies with the sound turned off so he can concentrate better on the visuals. He enjoys following the cinematic styles of particular directors, and he described Ingmar Bergman as a favorite because of Bergman's choice of visual images and devices.

Logical Pattern

Logical intelligence involves reasoning and using systems to organize, categorize, and classify. Thinking logically allows you to reason, infer, and argue according to a systematic set of principles, or rules. You use logical thinking when you engage in two kinds of reasoning, called deductive and inductive reasoning. You use deductive reasoning when you reach a conclusion based on a general rule. For instance, given the rule that all dogs are animals, and that the animal you are looking at is a

dog, you conclude that this dog is an animal. Inductive thinking, on the other hand, allows you to make conclusions on the basis of your observations. For example, you may have observed over your life that every crow you have ever seen has been black, and you draw the conclusion that all crows are black. In general, you are using logical thinking when you think on the basis of what is valid (well-founded), reasonable (agreeable to sound judgment), consistent (constant), systematic (showing a method or plan), and rational (showing good sense).

Another way of describing logical thinking is to say it involves your seeing how things are connected in reasonable, consistent, and valid ways. It allows you to see patterns of connection, even among seemingly different objects or events, draw conclusions about the patterns, and make predictions about future patterns. Some of the patterns typical of logical thinking are hierarchies (e.g., the classification schemes for animals and plants; the organizational plans for many large corporations), analogies (e.g., A is to 1 as C is to ?), proportions (e.g., Five laps are to 4 minutes as 25 laps are to how many minutes?), series completions (4, 14, 194, 37634, ?), classifications (Which of the following does not go with the others? ditch, arroyo, canal, dam), interpretation of metaphor (She was a willow in the storm), proverbs (A stitch in time saves nine), syllogisms (e.g., Men die. Socrates is a man. Socrates will die), probability problems (You toss a coin in the air 100 times. How many times can you expect it to land heads?), and combinations (Here are three different shapes — triangle, circle, square. Show me all the different ways you can combine them).

A good example of an activity dependent on logical thinking is computer programming, which relies on an ability to organize complex rules and structures. Those interested in science find themselves using logical thinking regularly to understand the questions asked by scientists, their methods, and how they use their results to predict future events or circumstances.

A more familiar example of logical thinking is illustrated in how you organize your environments: work space, play areas, hobbies, drawers, kitchen, closets, and garage, among others. In addition, you use logical thinking in organizing the projects related to your work, play, or home. For instance, you use a logical plan when you plan the steps involved in reorganizing your garage or workroom. Although there are several possible ways of arranging the contents, you use logical thinking when you decide which items go together and which ones do not. You may decide to put all the garden tools in one area, all the car items in another, all the household tools in a third. Although spatial considerations may modify your original plan, your organizational scheme will reflect a logical, or methodical, classification system.

Logical thinking is involved when you pack for a trip. How you organize the items in your suitcase reflects your organizational scheme. Organizing and packing the car also show how you categorize and plan. You will also see your logical thinking reflected if you have ever taken an outdoor trip requiring packing a backpack or canoe. Similarly, setting up a tent shows your organizational schemes in action.

Your logical thinking will be called upon if you observe holidays celebrated with decorations of your apartment, house, or yard. You may discover that different family members prefer different decorating approaches; each shows a different organizational strategy involving logical thinking.

Some commercially available games require logical thinking. To play chess, for instance, you construct a set of if-then statements about your own and your opponent's moves, planning your responses and offensive moves far in advance. The mystery game *Whodunit* challenges players to balance physical clues (which incriminate suspects) against alibis (which eliminate suspects), thus requiring the use of logical inclusion and exclusion categories for successful play.

When I was talking with people about how they think, I observed how they organized themselves, their environments, and the people and events around them. At first I thought I would describe a scientist to illustrate logical thinking because the premises and methodologies used in science epitomize logical thought. However, after further consideration I decided against this option. I was more interested in describing someone oriented toward organizing and categorizing, someone whose life would be more familiar to most readers. A few days after I had decided against using the scientist I had already interviewed, an opportunity arose to meet and converse with a woman who is head of a company whose main service is to organize clients' businesses. After meeting Jeanette, I knew I had to describe her to illustrate a person whose primary orientation is logical.

Jeanette described herself as the most organized person she knows, a distinction she has carried throughout her life. Even as a child, she told me, she categorized everything she owned. For example, she arranged and rearranged her toy horse collection by color, size, date of acquisition, alphabetically by name, and even by length of time in the most prized spot in her room — the windowsill. Her family quickly recognized her organizational skills and would ask her where to find any temporarily lost object. Her friends capitalized on her ability, too, by adopting her highly organized study methods for subjects requiring extensive memorization. She recalls organizing her notes from a college-level history class through a variety of means: color codings, alphabetical

listings, chronological categories, subject listings, and even relationships between the events she was memorizing and the literary happenings occurring during the same time periods.

She reported to me that she particularly enjoyed science classes in school because the material she was learning seemed definite, with clear boundaries and rules. Chemistry was a revelation to her because of its reliance on a basic set of elements from which an almost infinite number of substances can be generated. Anatomy was easy for her because of what she said were its clear schemes — to Jeanette, everything in the body seemed to be logically arranged.

Jeanette told me she began organizing for other people in high school, when she started to rework her friends' notes taken in classes. She would type the friends' handwritten notes, rearranging the information according to a scheme that made sense to her. Evidently her sense of logic coincided with her teachers' — she and the friends she assisted received consistently high marks for their work. In college Jeanette extended her organizing services to help her friends organize their closets, drawers, and study areas, attracting the attention of people she did not know who were eager to have her show them how to organize their environments to enhance their lives in some way.

Not yet realizing the economic potential of her organizing abilities, Jeanette pursued a degree in English. She told me she enjoyed the extensive reading and writing associated with her major and planned to pursue a career in publishing, most likely as a technical writer for a trade journal. After graduating with her English degree, she worked for 3 years as an editorial writer for a state highway patrol magazine before realizing she was unhappy with the direction her work in writing seemed to be going.

Eventually Jeanette approached her boss to talk about her unhappiness. In the course of the conversation, she discovered what she really wanted to do for the magazine — reorganize the entire operation, beginning with the physical offices and extending to their operating practices. Jeanette told me her boss was surprisingly amenable to her idea, primarily because he had been discontented with the magazine's operating procedures and had been exploring avenues for reorganization. Eventually he agreed to Jeanette's proposed reorganization plan, which she enacted over a 3-year period. At the end of that time, she knew that she wanted to engage in this type of work full time and, with her boss' help, began advertising her services.

Today Jeanette employs three organizational consultants to accommodate the business demands for her services. Her principal clientele is small businesses, primarily those operated by people without back-

ground in business. Her main accounts involve filing and accounting systems, physical environments, and personnel management structures. She operates as a troubleshooter, her primary goals to increase efficiency, productivity, and profit through reorganizational processes.

I asked Jeanette how she organizes her personal life. Through our conversations, it became obvious to me that she was highly organized in her approach to time management, and I wondered about her house. Did her logical abilities extend into her own drawers and closets? Did she enjoy playing through logical thinking? She told me that, as an adult, she finds herself unorganized in her life outside work. She reported that, because her work is demanding and time consuming, she tends to leave logical thinking at the office. Though she used to enjoy games of logic before she started her own business, now she seldom chooses to relax or reduce stress through logical means. She told me her closets and drawers continue to reflect her logical bent, although not as persistently as when she was younger.

As I listened to Jeanette's story unfold, I was aware of how she was telling it — her story was clearly organized chronologically and emotionally. She told me what happened during each period of her career and how she felt about the events as they occurred. Her intent seemed to be to portray the facts in a logical and coherent fashion rather than in a narratively pleasing way, for example, or to convey a particular spatial image or pattern. I asked her about her interest in language. She told me she had been interested in linguistics as a college student and had taken some coursework in linguistics. She said she enjoyed the courses because they seemed to put language into a logical scheme. The emphasis in the courses was not on the content language carries (what a person who is oriented toward linguistic thinking might be attracted to), but to the grammatical aspects, that is, the logical systems of organization underlying human language. Jeanette reported being adept at grammar throughout her student life, preferring the study of syntax to the study of literature. Focusing on the mechanics of writing was more attractive to her than the aesthetic or stylistic elements.

Finally, Jeanette reported she has always been interested in philosophy, especially systems of thought based on logical proofs. Though she has never had a course in formal logic, Jeanette has, on her own, read such authors as Descartes, Kant, and Spinoza. She enjoys discovering different approaches to how human thought is organized and described, as well as the various classification systems used to categorize human knowledge.

Bodily Pattern

You use bodily intelligence to know where your body is in the physical world, and how your body feels in preparation for movement, during

movement, and as you physically tire and rest. In addition, you use your body to feel emotions, motivations, and desires. Bodies can be used in goal-directed ways, as, for instance, in sports, or in expressive ways, as in dancing or acting.

Everyone has a body, but not everyone uses it the same way. Some people think and understand their lives primarily through their bodies. These people form images of how their bodies feel when they are engaged in certain movements, and they can mentally manipulate those images to rehearse, as in skiing or typing. In addition, some people even speculate with their bodies when they imagine how their body will feel under certain circumstances. For example, dancers often rehearse movements by thinking about them (of course, they also practice the movements physically as well), and they can hypothesize what new movements are likely to feel like and what their result will be.

Actors use their bodies in highly skilled ways to convey characters. They use their bodies to send messages about mental states, attitudes, beliefs, and ethnic and racial backgrounds. They send messages with their bodies, often with such skill that the audience identifies them with the characters being portrayed — which is the purpose of theater or film. Actors with strength in bodily intelligence report that they study the character's mental *and* physical characteristics in order to know how to use their bodies in conveying the character's persona.

Most people use their bodies to convey different attitudes, beliefs, and values when they communicate with others. You may remember times when you have consciously used your body to communicate to your listener very specific messages, such as your mood, your intentions, or your attitudes toward others. You may be conscious of your facial expressions, your postures, the tone of various muscles as you engage in conversations with others, and you may consciously use these aspects of your body to express your messages.

If you have ever been involved in developing a mime or a clown character, you know how important your body is in conveying ideas and characters. You may have even communicated an entire story with your body through miming or clowning. Such nonlinguistic communication requires your close attention as you decide how to use your body to produce the effects you want.

People who provide body work use their bodily intelligence (and sometimes their own bodies, as in therapeutic massage) to bring about change in other people's bodies. The physical or massage therapist studies how bodies work in order to help those with injuries or conditions needing assistance. Often the therapist will focus on how people use their bodies in their everyday lives so that they can assist them in changing detrimental patterns of posture or movement. To a body ther-

apist, the body is an instrument constantly engaging in complex actions, even when it is at rest. The various systems of the body are in ongoing interaction with each other, producing an assortment of effects of interest to the person attending to the body. The body therapist is interested in knowing which muscles perform which movements, which skeletal structures are involved with which muscles, the effects of exercise and nutrition on body functioning and disease processes, to name a few.

Using your body for goal-directed purposes uses bodily intelligence, though the outcome may not appear to be related primarily to the body. If you play a musical instrument or operate machinery, for example, you must use your body to have an effect on the instrument or tool. Even though music or producing a particular product is your goal, your body becomes a major part of the instrument or tool. The same process is true in any activity requiring physical involvement. Though many intelligences may be in play in reaching a particular physical goal, your body is the instrument essential to the outcome and illustrates your bodily intelligence.

To portray bodily intelligence, I will describe Lisa, who is a body therapist. Lisa is oriented toward how her own and other people's bodies work, what they look like and how they feel as they perform various actions and movements, and how to enhance their efficiency and health, specifically through an assortment of palpations and manipulations.

Lisa began her professional career as a bicycle racer. She raced on both the amateur and professional circuits for several years before deciding she wanted to develop a less dangerous and less migratory livelihood. Like many bicycle racers, Lisa had become skilled at massage. She told me that the routine following training rides or races was for the racers to give each other massages to work out the kinks developed from the long rides. During the time she rode, she learned a considerable array of beneficial and useful techniques. She also became aware of what worked best on her own body.

When she decided to quit racing, Lisa enrolled in school to obtain her license as a physical therapist assistant. She described her experience as the first time she had enjoyed formal schooling. During her grade school years, she had been identified as having a learning disability, primarily on the basis of her desire to move her body rather than sit at a desk when she was learning. Her experience in special education quickly led her to conclude she would rather not be in school, an unavailable option until she reached high school. She described roaming the halls of her high school, feeling relief to be moving. Eventually she managed to graduate, but not without considerable

censure from the school authorities for her desire to be moving her body. Once she left high school, she vowed not to return to school again.

The program to acquire certification as a physical therapist assistant changed Lisa's mind. She found she enjoyed learning about the body and how it works, especially as she had literally gained hands-on experience during her racing days. Too, a major part of the program involved executing the techniques she was learning through lecture and demonstration. As she learned more, she found she was virtually insatiable. She would sit through an entire weekend of coursework to hear about and see new techniques and methodologies — a far cry from her previous agitated state in school settings.

I asked Lisa what she sees when she looks at someone's body. Besides the obvious aspect of attractiveness, she told me she notices the overall posture, muscle tone, skin texture, ease and range of movement, and degree of ongoing movement. She observes these aspects of bodies in animals as well as in humans, noting different characteristics of assorted species. She said she can see what modifications a body needs to be more efficient and healthier. She described observations she had made of famous athletes, predicting potential injuries on the basis of unsuitable or imprecise movements and postures. In addition, she described her friends in terms of how she sees their bodies. She described Lynn, for instance, as her friend with a lumbar weakness associated with a skeletal deformity. Tony has a weak neck as a result of a whiplash injury over 20 years ago, while Kathy has recurrent muscle spasms of the quadratus muscles.

After working for several years as a physical therapist assistant, Lisa realized her dream of becoming a licensed massage therapist in private practice. Today she makes her living doing body work, largely on referrals from physicians, chiropractors, and physical therapists. She works with several professional athletes, assisting them in maintaining reasonable training and playing schedules. A part of her practice is devoted to working with people with sports-related injuries.

Lisa told me several times of her love of the diagnostic methodology and the consequent therapeutic process designed to rehabilitate injured tissue. She enjoys discovering exactly which muscles or muscle groups are injured and then physically manipulating them in ways that promote healing. She routinely attends courses in neurology, massage, physiology, and rehabilitation to increase both her knowledge and the therapeutic approaches available to her.

Lisa's bodily orientation extends to her own body. She herself works out regularly (for relaxation as well as exercise) and acts as a coach for people who want a workout program tailored to their unique needs.

She continues to ride her bicycle, though more for pleasure than for competitive purposes. She described herself as an addicted hiker and has just taken up both downhill and cross-country skiing. I was interested to learn that, though she has suffered physical injuries resulting from bicycle accidents, she has rarely been hurt as a result of inattention to her physical capacities and limitations. She seems aware of and in tune with her body and what it can do at any given time.

I was interested in Lisa's descriptions of how her emotions manifest themselves in her body. She told me she knows her emotional states through how her body feels. Anger, for instance, creates a certain bodily sensation in her stomach, while happiness makes itself felt in her muscles. She remembers important emotional milestones by recalling how her body felt at the time. She told me of a particularly difficult family situation that occurred several years ago by relating it to a series of muscular difficulties she experienced at the time.

An important part of Lisa's orientation to bodily thinking is her appreciation for how other people use their bodies to express ideas, feelings, and concepts. Lisa told me she particularly appreciates dancers, mimes, and clowns. She has a secret dream of developing a clown character and hopes to find a mentor in the immediate future. She makes a point of watching figure skating and ice dancing on television and regularly attends live dance concerts. Overall, Lisa's life shows her strong orientation and attention to the bodily.

Musical Pattern

Musical intelligence is thinking in melodic and harmonious sounds as they unfold over time. You use musical intelligence when you pay attention to songs, melodies, countermelodies, rhythm, the qualities of sound, major and minor keys, flats and sharps, and which notes group together harmoniously. In cultures with systems for writing music, people use musical intelligence to understand visual symbols as representations of acoustic events, much as you understand the printed word as a representation of the spoken.

Musical thinking incorporates the appreciation of musical styles and concepts. In attending to styles and concepts, your musical intelligence allows you to unconsciously notice melody, tempo or rate, tone, and musical progressions, or how chords follow one another. Just as linguistic intelligence allows you to think in linguistic conversations, musical conversations include recognizing a tune played on the radio, or imagining variations on a musical theme. You might construct a song — a musical story — through thinking of a melody. Complementing the melody

with bass, you can spin the song, giving it a tempo, a rhythm, variations, and refrains.

Musical intelligence allows you to consciously manipulate the various aspects of the musical and play with them, taking pleasure as you do it. You can converse through the musical, perhaps engaging in a variety of types of conversations and ranging across several musical types. If you are a performer, thinking in music means playing, analyzing, experimenting, and more playing.

One of my good friends, Nan, is oriented most strongly to musical thinking. As I mentioned earlier, music infuses Nan's life — she defines herself in terms of her music. Although at one time she considered a career as a singer, she no longer performs as a singer. Nevertheless, she periodically reconsiders her decision to pursue a career outside music, and she recently acquired an electronic keyboard so that she can accompany herself in private. I find it interesting that I have never heard Nan sing except in accompaniment to music we happen to be listening to.

When I first met Nan, I was astonished to see her collection of records and tapes. As compact discs (CDs) spread in popularity, Nan's collection of them increased exponentially. Each of her three collections — records, tapes, and CDs — is arranged alphabetically (a characteristic of logical thinking) for easy access. More astounding, Nan can find any particular song one might request, regardless of how long ago she last listened to it herself. When I wanted to record multiple versions of a single song, Nan's collection yielded 16 variations, each of which she found within seconds.

Nan's appreciation extends to most musical styles, ranging from classical and opera to hard rock and rap, though popular music is her favorite. She claims she does not know much about the blues, but my questions to her about the blues are seldom unanswered. Her collection reflects her tastes; it, too, is eclectic. Nan knows about every musical happening in the large city where she lives and attends most live popular musical events. She follows the lives of musicians and has met some of her favorite artists.

I cannot remember ever entering Nan's house or car and not hearing music. As far as I can tell, she listens continuously. She reports that she listens from the moment she awakes until she goes to sleep each day. She purchases as many of the electronic music players as she can afford, most recently a portable compact disc player for her daily walk to and from the train and for her frequent air travel.

Nan related to me that when she attends a movie, her attention is drawn first to the music. Throughout her viewing of the film, she is

aware of the music and often describes a movie by detailing the musical statements and metaphors. She frequently tells her friends how she would have done the music differently had she been music director for a particular film.

Nan has served as music director for several high school plays. As music director, she chooses musical selections to accompany the dramatic action and to be played before and after the performance and during intermissions. She then makes a master tape of the music for the entire show, which is used during each performance of the show's run. She has created musical accompaniments for comedies, dramas, and thrillers.

On several occasions Nan has told me of her strong attraction for music and how she hears music virtually everywhere, including the natural and human-made worlds. Not only does she hear bird songs, she hears melodies in wind noises, insect chirps, and water running. She hears songs in train wheels turning and air conditioning humming. She knows the type of music played in department and grocery stores and has made friends with a neighborhood grocer who plays the music of one of her favorite artists.

Most of Nan's correspondences with me have been musical. She has made many tapes for me, incorporating songs we have shared, songs I have not heard but she knows I will understand or enjoy, and songs characteristic of her identity and of our friendship. Her tapes are musical letters. When I first moved away from the city where she lives, she sent me a joyful tape celebrating our relationship — a reminder of the strength of our friendship and her commitment to its future. When her brother was dying, she sent a sorrowful tape expressing her grief in a manner words could never convey. Nan's musical tapes express her through her strongest way of thinking and reflect her preferred mode for being and knowing.

Mathematical Pattern

Mathematical intelligence is described as thinking about the physical world — its properties and its possibilities. Engaging in mathematical thinking requires you to think in terms of numbers and other symbols (e.g., X, Y, π, =) arranged into systems based on rules and principles. You can use mathematical intelligence to describe and symbolize the properties of the physical world such as proportion, ratio, speed, force, mass, charge, acceleration, and the like.

Most people use some degree of mathematical thinking in their everyday lives. You figure out how far you can drive on a tank of gas, and you can calculate discounts on clothing or appliances. You determine how much interest you will pay on a car loan and whether it is better financially to take a lower interest rate or a one-time rebate. You modify recipes to accommodate more or fewer people — or missing ingredients.

You may calculate the cost of groceries as you pick up each new item, deducting the value of the coupons for selected items. You may use mathematical thinking to calculate the changes necessary to translate a recipe written for four into proper proportions for six. You calculate gratuities for those rendering services such as waiting tables, driving taxis, or carrying luggage. If you travel in countries outside your own, you use mathematical thinking to translate the value of currencies and exchange rates with the currency of your own country.

To illustrate mathematical thinking, I will describe Terry, who told me his thinking has taken mathematical forms for as long as he can remember. Terry makes his living as a mathematician, designing mathematically based models for information transmission via computer, telephone, satellite, and fiber optics. Most recently, he devised a telephone system for a long-distance carrier. Terry described the system as revolutionary because, unlike existing telephone systems, it is based on a mathematical model never considered a likely candidate to explain information relays and information decay.

Terry told me his earliest thinking involved sets, although at the time he was unaware it had a name or that anyone else thought this way. In fact, he felt unusual because no one in his family seemed to understand what he told them he was thinking. He told me he felt relief once he discovered algebra (at age 7) because at last (to a 7-year-old, 7 years was a long time) he had found a symbol system to represent what he was thinking.

Algebra opened a new universe to him. Not only could he think about mathematical concepts, he could try them out through algebraic calculations, and he could communicate with other people (mainly teachers until he reached adolescence) about what he was thinking and trying out. In addition, he could play with numbers, symbols, and concepts. He began to discover humorous qualities inherent in mathematical realities. More important to him at the time, he began to appreciate the beauty he found in the world of mathematical thinking. For example, he began to notice that certain numbers appeared in patterns and that some solutions to problems were tighter and more elegant than

others. As he learned more advanced mathematics, he found himself thinking in more abstract ways, stretching to invent new methodologies to support the concepts he was imagining.

By the time Terry was in high school, mathematics constituted the most important part of his life. He took every math course offered in his school and won a math scholarship for 4 years of study at a prestigious university, where he completed his master's degree as well as his baccalaureate. After graduation, he was offered several jobs as a mathematician. He decided to take the one with the most opportunity for pure research, only to discover once he began the job that he had come to prefer the practical applications. Eventually he began to freelance as a mathematician, working as a project consultant for various companies who recognized how to use his talent.

Mathematics infuses Terry's thinking. For instance, when I asked him to describe a typical vacation, he told me about the mathematical aspects. Describing a recent cross-country car trip, he told me about his gas mileage, the stress fractures in the rocks he had seen in the Rocky Mountains, the mathematical characteristics of various bridges he had seen, and how he had calculated, based on his estimate of their height, the load-bearing characteristics of the girder beams for the skyscrapers he had seen along the way.

Asked what he does to relax, Terry told me he runs equations through his head. To him, they have a soothing quality and serve to reduce his stress. He described various equations as good friends. In fact, he told me he has favorites he runs during particularly stressful times, almost like a chant. He mentioned that he also enjoys running calculations for new problems and constantly seeks new problems to solve.

One of Terry's current joys is playing with fractal geometry, or fractals. As he explained it to me, fractals involves a way of measuring qualities that have no clear definition, such as the length of a twisting coastline or the fluctuations of the stock market. Fractals describe the degree of brokenness or irregularity in an object through showing the degree to which a pattern repeats itself at various scales of the object. Terry enjoys calculating the degree of irregularity in objects like snowflakes, showing how the same pattern repeats itself through smaller and smaller scales. He told me he sees fractals everywhere now that he is playing with describing objects and events through fractal geometry. He sees similar patterns of bumps as he observes the finish on the wing of an airplane and the ground below as he views it from 33,000 feet. The patterns of agricultural fields visible from the air remind him of the patterns on computer microchips, so he attempts to mathematically symbolize the two patterns.

I asked Terry if he thinks mathematically when he is cooking, for instance, or cleaning house. I wondered how much of his everyday life is permeated by mathematical thinking. He told me he cooks like his grandmother cooked — a bit of this and a bit of that tossed together, no strict measuring. He finds it easy to reduce or expand proportions though he said he sees the reduction or expansion as a quantity rather than as a number. He could think of few aspects of his life that do not render themselves into mathematical form.

SMARTNESS: A REPRISE

Taken together, the eight patterns of smartness described in the preceding pages focus our attention on the multifaceted nature of human learning and meaning-making. I have come to view the eight intelligences as inner voices through which each of us expresses our own individual story. As we live our lives, the eight intelligences develop and grow. Over our lifetimes, the balance and relationships among the eight voices change and evolve. For instance, at one point in my friend Craig's life, he played clarinet, which he felt at that time expressed how he thought and felt about almost everything of importance in his life. Later, he stopped playing music and began using his body to skate, play racquet sports, and hike. During this more recent time, he felt his body was expressing his most significant meanings.

In essence, then, each of us is our own storyteller spinning our stories — our lives — through our eight inner voices. The plot and characters of our stories may change over time, along with the settings and problems. Our eight voices, however, remain with us throughout our lives, fluid, dynamic, and vigorous. They serve to ground our narrative about how we are smart and how we make meanings in our lives.

Smart Stories: How To Tell Them

In my discussions so far, I have used the term *narrative* in two ways. I have spoken about a cultural narrative that has developed around intelligence and learning, a story in which certain people are smart and others are not; some people are more valuable than others on the basis of their performance on test instruments and in school; some people are labeled deficient, disordered, impaired, or handicapped. And I have spoken about the narrative as a vehicle for understanding how people make meaning in their lives. In the latter discussion I contrasted narrative explanation and logical explanation, emphasizing their different structures and purposes.

In the previous chapter, I began the new story about how people are smart and how they make meaning in their lives. I described the eight smart patterns, using examples from people I have interviewed to illustrate each pattern. I concluded by suggesting that these eight patterns can be viewed as inner voices through which each of us expresses our individual story about who we are.

In this chapter, I describe the process I have developed to yield stories about how people are smart and how they learn. I describe two tools: *Your Personal Smart Profile*, the profiling instrument I developed for people to generate stories about how they *themselves* are smart, and *The*

Smart Profile, which is the instrument I constructed for people to generate stories about how *other* people are smart.

DEVELOPING STORIES OF HOW PEOPLE ARE SMART

I begin with the words of Gertrude Stein, beyond compare an expert on narrative and story. Stein worked with William James when she was studying philosophy and psychology at Radcliffe. In her studies of the reactions of average college students in a state of normal activity and in a state of fatigue (induced by their examinations), she found that she was less interested in their reactions than in what she called "the bottom nature" of their characters. She concluded about these experiments that "it will be readily observed that habits of attention are reflexes of the complete character of the individual" (Stein, 1962, p. 243).

Stein goes on to say: "I then began again to think about the bottom nature in people, I began to get enormously interested in hearing how everybody said the same thing over and over again with infinite variations but over and over again until finally if you listened with great intensity you could hear it rise and fall and tell all that there was inside them, not so much by the actual words they said or the thoughts they had but the movement of their thoughts and words endlessly the same and endlessly different" (Stein, 1962, p. 243).

The profiling systems I have developed were designed to capture, as far as is possible, the "complete character" of the individual through an intense attention to and regard for individual people, whether ourselves or others. The two systems I have developed — *The Smart Profile* (Miller, 1991) and *Your Personal Smart Profile* (Miller, 1992) — allow people to describe themselves and others in words (and graphs, for those who like pictorial information) in order to discover how they are smart in their everyday lives — in their play, work, relationships, learning, and health. These descriptive systems provide a means for each person to construct a story of a person — self or other — through uncovering strengths in the eight ways of thinking I described in the previous chapter.

By describing how she pays attention, what she seeks out and prefers in her everyday life, each person comes to understand her competence and strength; she develops the story of her own abundance as a knower and learner. Thus each person's process is revealed — the attending, seeking, and preferring that inform our every thought and action ascend into view for our enlightenment and understanding.

How do the systems work? It depends on whether you want to describe yourself or others. The underlying ideas are identical, but the procedures vary according to your purpose. I begin with a description of *Your Personal Smart Profile,* a tool for creating a story about how you are smart.

YOUR PERSONAL SMART PROFILE

I have developed a seven-step procedure for describing your strengths and competences across the eight patterns of thinking I presented in Chapter 4. Using a journaling format, you, the reader, follow the directions for each step, recording your discoveries and learnings along the way.

Step 1 introduces you to each of the eight patterns of thinking I described previously. You learn the characteristics of each pattern through reading, first, a description of that particular pattern of thinking, and, second, a short vignette of a person who demonstrates strength in that pattern of thinking. In addition, you have access to a detailed list of the characteristics for each way of thinking.

Once you are satisfied that you are familiar with the eight patterns, you move to step 2, where you discover how you spend your time, what you attend to and enjoy, and what you seek out and prefer in your everyday life. You complete an inventory of what makes you curious, your favorite/least favorite things to do, people you admire, your ideal learning environment, what you do to relax, and a time log of a typical week. In addition, you create a view of yourself in the future: in the immediate future, in 6 months, in 1 year, and over the long term. You also respond to several questions posing hypothetical situations, each designed to elicit information about your preferred responses under stress.

Step 3 is a translation process. First you review what you have learned about yourself through describing your attentions, preferences, and seekings, and you review the characteristics of the eight thinking patterns. Then you begin generating descriptions of yourself in each of the eight. You translate what you know about yourself from the information you gathered about yourself into the eight categories. In this step you focus on your strengths. You list what you do and what you avoid doing without judging whether you are good or bad in your abilities. When you are satisfied you have created enough descriptions in each category, you move to step 4.

Step 4 also involves translation. At this stage you make a judgment about the rank order of your thinking patterns. Figure 5–1 shows the

scale you use to complete the ranking. Notice that the scale is a strength scale and that it uses words rather than numbers. I had three purposes in constructing it in this way. First, because I wanted competence to show, I chose words signaling strength and ability. Second, I wanted a scale that could be used without reference to developing ability. Therefore, I could not use words referring to expertise or mastery. Otherwise, how could people of varying ages and opportunities use it? Third, I chose words rather than numbers because my purpose was — and is — to design a system based in qualities rather than quantities. Words thus serve to convey the meanings I intended to target.

Another word about the scale. Notice the two categories "beginner" and "prebeginner." These categories are a bit different from the ones labeled "strongest," "stronger," and "strong." "Beginner" and "prebeginner" are used to represent those patterns the reader believes are not yet developing or are just beginning to emerge. Rather than symbolize these by referring to them as deficient, impaired, or weak, I chose to describe them in terms that denote an integral part of learning — that part where the learner is hesitant, unsteady, afraid, or reluctant to proceed. This way the system reflects my emphasis on caring for learning and for the learner; there is no pessimistic perspective to restrict the learner's process.

To complete step 4, you choose the pattern or patterns you believe are your strongest, along with those you consider to be at the prebeginner or beginner stage. Then you rank the others in between. The result is a picture, a graph, of the thinking and attending patterns you have decided are your strongest, stronger, strong, beginner, and prebeginner at this time in your life.

Step 5 offers you the opportunity to focus more specifically on any one (or more) of the eight thinking patterns. You can develop microprofiles for any you choose to investigate. For example, you may wish to learn more about your linguistic thinking than you can glean from the general profile you have already completed. In this case, you can then choose a set of purely linguistic characteristics to profile, using the same word-based scale. You can profile as many linguistic characteristics as you wish, thus becoming more and more detailed about your knowledge of yourself in the linguistic realm. You can follow the same process for as many of the patterns as you want, developing microprofiles for all eight if you choose.

In step 6 you extend the profiling process to situations in your life. Completing steps 1 through 5 gives you a detailed and specific picture of yourself across the eight thinking patterns. In step 6 you turn your attention to the important situations you encounter. In this step you can

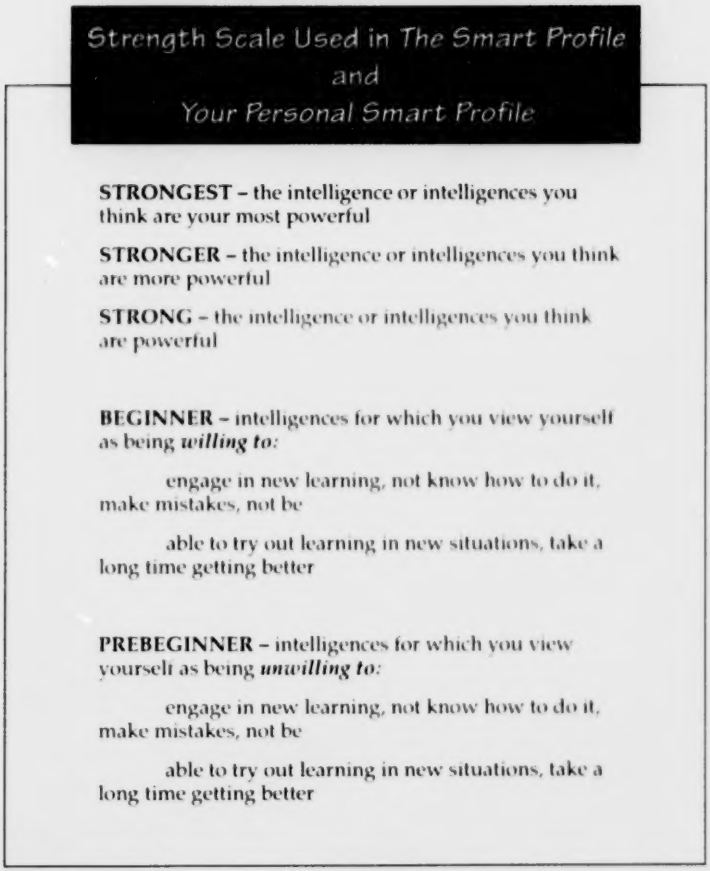
Strength Scale Used in The Smart Profile
and
Your Personal Smart Profile
STRONGEST – the intelligence or intelligences you think are your most powerful
STRONGER – the intelligence or intelligences you think are more powerful
STRONG – the intelligence or intelligences you think are powerful
BEGINNER – intelligences for which you view yourself as being willing to:
engage in new learning, not know how to do it, make mistakes, not be
able to try out learning in new situations, take a long time getting better
PREBEGINNER – intelligences for which you view yourself as being unwilling to:
engage in new learning, not know how to do it, make mistakes, not be
able to try out learning in new situations, take a long time getting better

FIGURE 5-1
The strength scale used in *Your Personal Smart Profile*.

choose the situations you want to profile. For example, you may want to profile a relationship situation that is significant in your life. Once you choose the situation (or situations — you can profile as many as you want), you begin by describing the demands or requirements of the situation in terms of the eight thinking patterns. In other words, you begin by listing, for each thinking pattern, those characteristics demanded or required in that situation. You can then graph the situation much as

you did your own profile of thinking pattern, this time using a modification of the word-based scale, shown in Figure 5–2.

You finish step 6 by comparing your general profile and microprofiles with the situational profiles you have developed. You look for ways in which your profiles show correspondences with and deviations from the demands of the situations you profiled.

The final step, step 7, brings you to some resolution about the discoveries you have made through the profiling process. Using what you have learned about yourself and the important situations in your life,

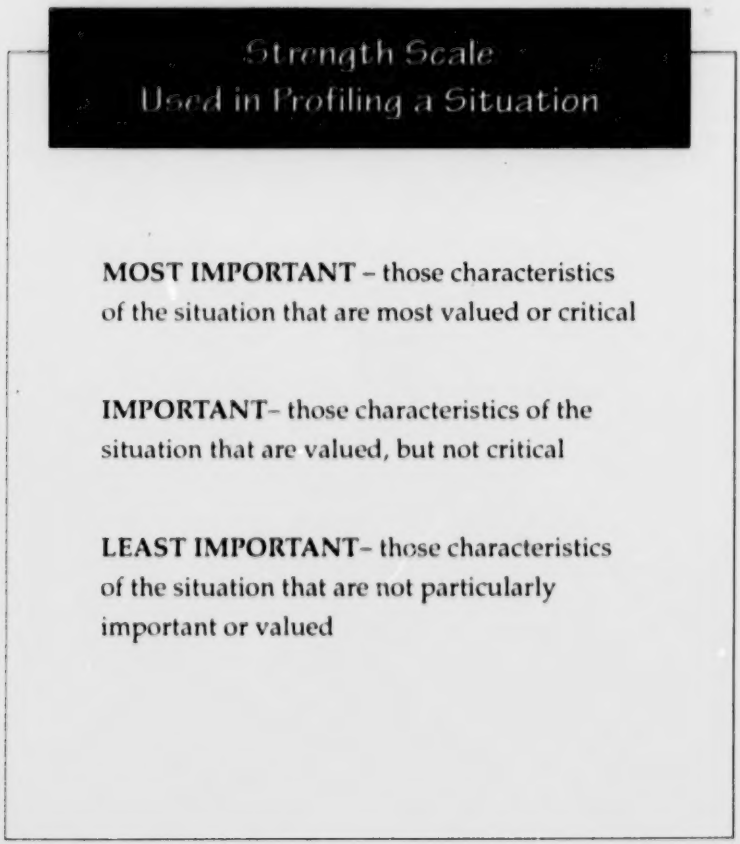
Strength Scale
Used in Profiling a Situation
MOST IMPORTANT – those characteristics of the situation that are most valued or critical
IMPORTANT– those characteristics of the situation that are valued, but not critical
LEAST IMPORTANT– those characteristics of the situation that are not particularly important or valued

FIGURE 5-2
The strength scale used in profiling a situation.

you look toward the future by summarizing your profile and developing goals for yourself. In a self-summary, you draw conclusions about your strengths across the eight patterns, your strengths within each pattern, the characteristics of the significant situations in your life, and the correspondences and deviations between your own profile and those of the situations you chose to profile.

You complete the profiling cycle by creating goals for yourself, based on what you have learned through the profiling process, for the immediate, middle-term, and long-term future. You are encouraged to create goals for your work, play, learning, relationships, and health. You can then compare these newly generated goals with those you wrote for yourself in the beginning of the profiling, noticing how your view of yourself has remained constant and how it has changed throughout the process.

USING *YOUR PERSONAL SMART PROFILE*

To show how a person might use *Your Personal Smart Profile*, in the following paragraphs I tell you how one person used it to learn about her strengths and capabilities. Rose is an elementary school teacher who has been teaching for over 20 years. She has taught every grade but prefers the fifth grade, which she has taught for the last 8 years.

I first met Rose several years ago when she had returned to graduate school to obtain a state certification in learning disabilities. She was enrolled in a summer learning disabilities practicum for which I was the supervising professor. During the 6-week summer session Rose met daily with four students for 1 hour each, providing individualized learning experiences aimed at improving their abilities to achieve more comfortably and perform better when they returned to their home schools in the fall.

I enjoyed these summer practicums because the people enrolled in them were typically returning teachers who were expanding their knowledge and skills and who were already master teachers. I looked forward to my observations of their sessions with the students, as well as our individual meetings. I never failed to learn something new. Watching these teachers decorate the rooms in which they met with their students was as delightful as observing them teach.

Rose stood out from the first day I met her. Though she had read the reports about her students, which contained abundant information about their diagnosed disabilities in learning, her primary concern was how to tap into her students' strengths. She wanted to know how to find

out what those strengths were so she could design materials and activities. At that time I was beginning research on *The Smart Profile,* in which Rose expressed a keen interest. Through the summer, she and I had many provocative conversations as she probed her students' interests and preferences and I supplied her with the information emanating from my research activities. We were pleased with our efforts, as were Rose's students and their families.

When we said goodbye that summer, Rose told me she wished I had a smart profile she could use herself. Five years later, I called her to invite her to be one of my research subjects for the new personal profile I was developing. She quickly accepted, and we began the engaging journey through Rose's self-administration of the pilot version of *Your Personal Smart Profile.* We undertook her profiling as a joint experience. Though she could have proceeded on her own simply through following the directions in the manual, we decided that I would act as her profiling confidante.

To begin, Rose reviewed the eight smart patterns to refresh her memory of each. She particularly liked the anecdotes describing people I had interviewed and referred to them throughout her own profiling. She then took a few minutes to respond to the guide questions in step 2. She wrote brief descriptions of how she responds when she is under stress, what she does to relax, the people she admires, her favorite and least favorite things to do, and so on. After she had completed her notes, we talked about what she had written. Following the guidelines in *Your Personal Smart Profile,* I urged her to look for patterns in her responses, to see if she could begin to discern themes in how she pays attention in her everyday life, in what she seeks out and prefers doing, and in how she thinks in different settings and circumstances.

Next, following the guidelines for step 3, Rose set herself the task of analyzing her responses to the questions written during our first visit and of collecting word-based descriptions of herself in each of the eight smart areas over the period of the next week. When we met the following week, she brought her descriptions, which were written on a series of sheets. She told me she had posted eight pieces of paper around her house and her office so she could jot down whatever she noticed as she noticed it.

She began her descriptions of her interpersonal intelligence by describing her response to stress. Her first instinct was to talk to her closest friends about whatever the stressful situation might be. She indicated she would not first talk to her husband, primarily because, as she was beginning to see now through her own profiling, he was not particularly oriented interpersonally. She reported that he preferred talking to her

once she had reached some sort of conclusion or course of action following a stressful happening. Her first response, then, was to talk to friends. She further reported that she sought support from a variety of people through phone conversations, planning an excursion during which she could talk about her situation, or visiting a friend for the express purpose of talking.

Rose told me she had noticed another pattern in her behavior. Whenever she wanted to relax or to access her feelings, she sought out other people for conversation or some sort of activity in which she could feel part of a group. She reported that she always enjoyed chaperoning school events because she could converse with people she did not ordinarily have an opportunity to talk with. She also recalled that she preferred exercising and working out with a partner or with a group of people, indicating that she would rarely work out alone. She tended to choose organized classes such as water aerobics or fitness through stretching.

Rose also reported a strong interest in talking with her colleagues at school. She frequently dropped in on her principal to talk about ideas and events regarding the school, and she indicated she usually felt refreshed following these talks. She also tended to hold frequent conversations with her fellow teachers and thought they regarded her as a strong supporter for their activities and ideas.

Rose was particularly interested in her linguistic intelligence. Though she had been teaching for many years and felt comfortable and prepared to teach language arts, she noticed through her profiling that she preferred oral storytelling and the dramatic arts. Though she enjoyed written language and taught it well (as I could attest, having seen her adeptness during the summer learning disabilities program), she realized she was much more strongly drawn to spoken language. She reported that she made extensive use in her classroom of storytelling and the dramatic enactments of stories, while focusing on written language as a means of enhancing the students' knowledge of information or ideas conveyed through oral means.

Rose admitted to a lifelong affection for poetry, especially as it sounded when read aloud. She was particularly fond of the work of e.e. cummings, May Sarton, and Anne Sexton. What she recalled enjoying most about her college courses in literature was reading the material aloud in order to hear the language. She had been drawn to read Homer on her own because she knew his work had stemmed from oral stories.

Rose reported that she had a "good ear" for phonetics. She was intrigued by the phonetic aspects of dialect and often tried to pinpoint speakers' linguistic origins through listening to the dialectal cues present in their spoken words.

She explained that she kept lists of things to do, most often grocery lists or job-related tasks. She used to keep a personal journal but no longer found the time to maintain it. She reported talking to herself silently in words, frequently constructing a story about her experiences to recount to someone.

Rose's spatial intelligence surprised her. She had never thought of herself as particularly oriented to how things look, citing her propensity for getting lost in new surroundings and her inability to use road maps to find her way. However, what she discovered was that she was drawn powerfully to color, texture, line, and balance in clothing, furniture and home and classroom decorations, and to the appearance of food when she presented it for guests. She described choosing her clothing on the basis of its color and texture, and she reported that she could select the exact color of new accessories or coordinates without needing to have the color present.

Rose described her house as full of color and movement. She had a revolving collection of paintings, prints, photographs, glassware, and knickknacks that she used to generate a "look" for her house. She reported changing the "look" frequently through putting up new wall hangings and moving the furniture, which she could envision before it was actually moved. She enjoyed having flowers in her house, choosing to select and arrange her own bouquets.

Rose explained that she frequently used painting and drawing in her teaching, and, with her students' help, she filled her classroom with visual images. She used the visual atmosphere of her classroom as part of what she was teaching, transforming her classroom into an underwater environment during a unit on the ocean and into the surface of Mars for a unit on the planets. The children and she constructed the "sets" themselves, using a combination of painting, carpentry, photography, soft sculpture, and papier mâché to create the desired effects. She also reported creating, with the children, costumes and sets for the dramatic enactments the children performed from the pieces of literature they were studying.

Rose felt her logical thinking was sharp, though not necessarily dominant. She described herself as organized, preferring to plan out ahead of time the activities in which she would be engaged. Her closet was organized by color and function, though her drawers were somewhat less clearly laid out. She kept a personal calendar in which she kept track of appointments and important events. She thought her lists indicated a logical categorization system, and she reported enjoying games of logic, such as the puzzles published in magazines. The utensils and tools in her kitchen were kept in specific places, which she

named. She enjoyed reading mysteries because of their complicated plot configurations.

Rose described her bodily intelligence as weaker than most of her others. She worked out because it made her feel better, but she indicated she would prefer doing something else to feel better. Having found no feasible substitute, she stuck with her workouts. She reported enjoying the physical sensations associated with baths, particularly as a means to relax and unwind. She enjoyed hiking with friends, especially in the woods where she was likely to see interesting wildlife. She described a fascination with watching animals move and could explain the differences in wingbeat patterns of different birds.

Rose thought her awareness of her body was limited. For example, although her awareness of her emotions arose primarily in her body, she quickly associated them with her relationships with other people, losing track of how her body felt as she made that association.

Rose described her intrapersonal intelligence in terms of how she thought about herself. She indicated a strong awareness of herself as a unique person, different from others yet connected to them. She was aware of strong personal convictions about political and social issues, and she was active in a group of people concerned with stopping a proposed development on a piece of forest land near her home. She thought she was aware of what she needed to do to maintain her health and reported seeking counseling at times to gain new learning about an issue that puzzled her. She saw herself as curious about many things and highly motivated, particularly in her relationships with her family and her students. She felt her strong intrapersonal knowledge came in part from her desire to solve problems through interactions with others. Thus, she described her intrapersonal orientation as less strong than her interpersonal.

For Rose, music was background. Although she enjoyed music, she did not actively seek it out other than as something to listen to occasionally to relax. She preferred quiet when she was thinking or studying and could think of few occasions on which she was aware of music. She reported a typical adolescent interest in the groups popular at that time, but she had not maintained an interest in music beyond her teenage years. She described her husband and two children as being fascinated with music, often listening for hours as they studied or talked. They also frequently talked about the music they listened to and swapped stories about musical performers, musical events, and interesting developments. She indicated that she found their conversations intriguing because of their attention to something in which she herself experienced little interest.

At first, Rose described her mathematical thinking as somewhat limited, but as she recounted her mathematical orientation, she changed her mind. She reported a ready ability to modify cooking recipes to accommodate a different number of servings, and she was able to calculate discounts and unit value at a glance. She was in charge of the family finances because of her competence with the checkbook and financial accounting. She described a certain attraction for numbers because of their lack of ambiguity. She indicated she enjoyed balancing the checkbook or projecting a budget because of the stability of numeric information. As she put it, unlike words, numbers do not have synonyms.

Rose reported thinking about the number of seats in an auditorium or the number of pipes on a concert hall pipe organ. She described frequently counting her students when they were out of their seats, not because she needed to but because it was so immediately apparent to her how many there were. She had not studied mathematics beyond algebra and geometry, but she indicated a desire to take higher math if the occasion ever arose. She read professional journals and understood and enjoyed the statistical reports typical of experimental studies though she had not had a formal statistics course. She also reported an attraction for how certain numbers look, and described a series of dreams in which numbers were of primary importance.

Once Rose had described herself across the eight smart patterns, she arranged them in rank order using the scale shown in Figure 5–1, ranging from strongest to beginner (she did not choose to rank any at the prebeginner level). Her graphic depiction of herself is shown in Figure 5–3.

Based on her ranking of her eight intelligences, Rose decided she was content with what she had learned so far. She chose not to develop a microprofile of any individual intelligence or to profile a problematic situation. Rather, she wanted to develop a narrative describing how she was smart across the eight intelligences. In generating her new narrative, she discovered that she wanted to tell it in two ways. Her first attempt was a written description, which she read aloud to me, detailing how she saw herself in each of the intelligences. Unsatisfied with this rendering, she created a new narrative, inviting me to her home to join her husband and children as she presented it to us. The second narrative was a combination of the spatial, linguistic, intrapersonal, interpersonal, and, surprisingly, musical modes. She showed us items of particular interest to her (among them porcelain figures, photographs, and journals she had kept), telling us about her feelings and thoughts during the different periods of her life represented by each item.

Playing music in the background, chosen expressly to be unobtrusive, Rose presented a performance of her intelligences through express-

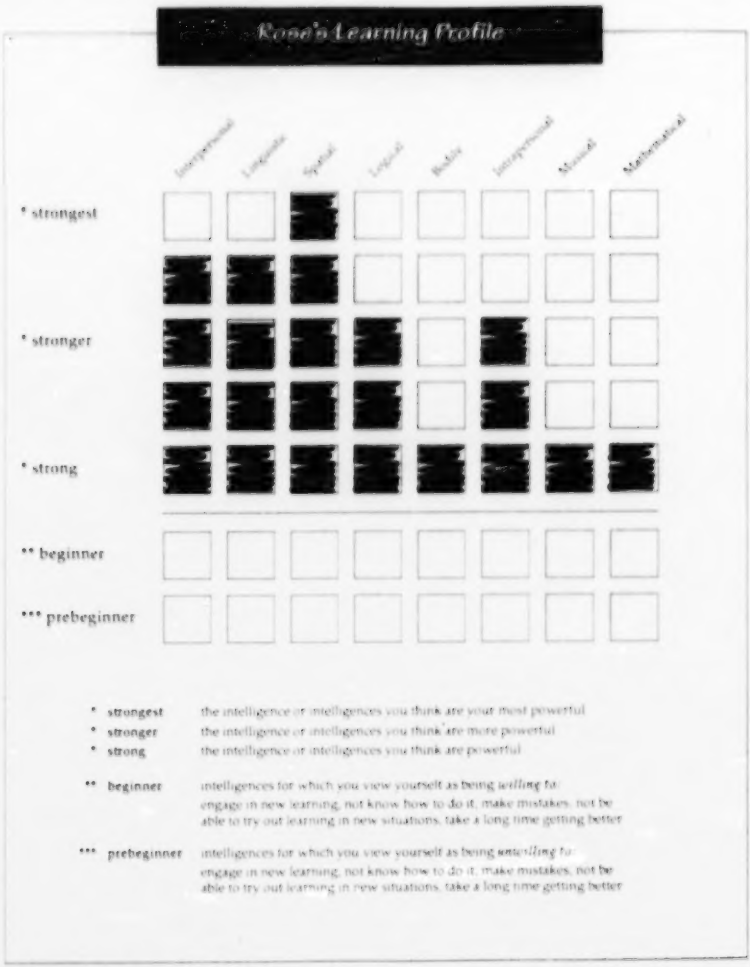
Rose's Learning Profile
Interpersonal
Linguistic
Spatial
Logical
Bodily
Intrapersonal
Musical
Mathematical
* strongest
* stronger
* strong
** beginner
*** prebeginner
* strongest the intelligence or intelligences you think are your most powerful
* stronger the intelligence or intelligences you think are more powerful
* strong the intelligence or intelligences you think are powerful
** beginner intelligences for which you view yourself as being *willing to*: engage in new learning, not know how to do it, make mistakes, not be able to try out learning in new situations, take a long time getting better
*** prebeginner intelligences for which you view yourself as being *unwilling to*: engage in new learning, not know how to do it, make mistakes, not be able to try out learning in new situations, take a long time getting better

FIGURE 6-8
Rose's graph of her Smart Profile.

ing ideas and feelings in various modes — linguistic, spatial, interpersonal, intrapersonal, logical, and bodily. She concluded with a statement of where she wanted to go from here, indicating that she wanted to develop more aspects of her bodily, logical, and spatial intelligences. She detailed a plan whereby she could accomplish her goals, which included

a creative plan to design a garden center for her students to plant as part of their science activities.

Rose showed us an initial sketch of the layout of the garden, indicating the locations for vegetables, herbs, and flowers. She told us she was particularly interested in the physical aspects of the gardening, which she viewed as a means to use her body more frequently and regularly as part of her job. She had also given careful thought to the precise location of the plants in order to produce the most visually pleasing displays, as well as capitalize on the mutual benefits produced by the different varieties of plants. Rose concluded her new narrative with a summary statement indicating her satisfaction with the process of developing her personal Smart Profile and an invitation to her husband and children to begin theirs.

In the preceding paragraphs I described one of the two profiling systems I have developed, *Your Personal Smart Profile*, which was designed to provide people with a story-based description of how they themselves are smart across eight patterns of thinking and acting.

In the next section, I tell you about the second instrument, *The Smart Profile*, which was designed to allow people to develop a story-based description of how other people are smart. I describe the components of *The Smart Profile*, along with two educational applications illustrating how the profiling process works.

In my research I have developed, either personally or in collaboration, a large number of applications of the Smart Profile systems. I have worked with educators, mental health workers, business executives and managers, artists, writers, musicians, actors, playwrights, theater directors, factory workers, students, families, and athletes — among others. In this book I have focused primarily on educational issues. However, even though I use educational settings to illustrate *The Smart Profile*, throughout my descriptions I attempt to show how the profiling extends beyond any particular setting or context.

COMPONENTS OF *THE SMART PROFILE*

I originally conceived of *The Smart Profile* (Miller, 1991) at a friend's kitchen table in Albuquerque, New Mexico in 1986. I was discussing with my two friends, Anna Zamora and Chris Newbill, the need for a way to describe what students in school *can* do. We had been working together for several years putting together programs and seminars for teachers in the Albuquerque Public Schools. Through our work, we had begun developing an approach to education based on student strength and individual learning styles.

In our conversation we complained that the information yielded by most existing instruments, virtually all standardized tests, was limited by being numeric, and, worse, provided almost no indication of how to design or carry out instructional programs. We wanted an instrument that would help us in our collaborations with teachers who wanted to rescue their teaching from the bureaucratic insistence on a technological approach to schooling. As we talked, we realized we would have to construct such an instrument ourselves — to our knowledge, nothing like it existed.

In our conversation that day, we compiled a list of characteristics we wanted an instrument to possess:

- focus on strength;
- enhance students' opportunities to develop experience and skills across a wide range of human activities;
- inform instruction through a curriculum designed to integrate ideas and activities through the use of unifying themes and units; and
- inspire the design of instruction emphasizing individual student learning profiles.

Before we left the kitchen table, I promised to design an experimental version of an instrument that would meet our criteria. Anna and Chris agreed to arrange to have a group of their colleagues in the Albuquerque schools use the profile (which is what the instrument turned out to be) and provide feedback so that it could be modified into a published instrument. Over a period of 5 years, Anna, Chris, and I, along with our friends and colleagues who served as the piloters, gathered information about the profile, and in 1991 *The Smart Profile* was published.

As I mentioned earlier, *The Smart Profile* stems from the same philosophical and theoretical ideas as *Your Personal Smart Profile*. The primary difference between the two instruments is that *The Smart Profile* is designed to be used by people who are interested in profiling *others* — teachers who wish to profile their students, for example, or therapists who want to profile clients. The Smart Profile consists of five primary steps.

The first step introduces the reader to the concepts underlying the profiling instrument: focusing on competence, assuming everyone is smart, taking a qualitative stance toward description, and using word-based descriptions rather than numbers. In this same step, the reader becomes familiar with the alternative perspective on intelligence reflected in the eight thinking patterns I described in Chapter 4. I provide narrative descriptions of each, along with lists of their primary characteristics.

In the second step, the reader learns about the components of the profile. I describe the learner protocol, which consists of a summary sheet for the person profiled. The learner protocol provides space for the following: identifying information about the person profiled; word-based descriptions in each of the eight thinking patterns; a graphic portrait of the rank ordering of the person's patterns; one microprofile for any one of the eight patterns; and summary and recommendations.

Step 3 details for the reader the procedures to be followed in constructing a smart profile for someone else. I describe three procedures, all of which are aimed at gathering information about how the person under profile pays attention, what she seeks out and prefers, and how she spends her time given a choice of what to do. First, I alert the reader to a potentially rich source of information: historical records available from physicians, schools, baby books, family histories, and assorted other agencies with whom families might come in contact. I describe how the reader can access developmental, medical, educational, family, and career/work records to glean evidence of the person's ways of thinking.

Second, I furnish the reader with a strategy for interviewing and talking with people, both the person under profile and those who know her or are related to her. I provide a set of guidelines to follow in the interviews, and I detail specific instructions about carrying out an interview with the person under profile, with caregivers, and with teachers or supervisors.

Third, I describe for the reader how to gain crucial information through observing. I give guidelines for observing people in a variety of settings, and I discuss observational techniques to be used with people of different ages.

The fourth step in completing a Smart Profile of another person involves the profiler/reader organizing the materials and information collected throughout the profiling to complete the learner protocol. I lead the profiler through the learner protocol, using examples to illustrate how to use it to full advantage.

The fifth and last step in constructing a profile for someone else is to translate the results into teaching practice. I indicate for the reader the primary contexts for using the profile results. I discuss using the results in educational settings, career decisions, work settings, in recreation and leisure, and for personal growth. For each I indicate how the results can be utilized in specific circumstances. For example, in discussing how to use the profile results in an educational setting, I describe using them in the classroom (physical layout, materials, time slots), in parent conferences, for writing progress reports, in multidisciplinary team activities, in

curriculum development and selection, in program development, for staff development programs and community projects, and in academic counseling, personal counseling, study skill development, and career counseling.

USING SMART PROFILING TO TELL A NEW STORY

I have witnessed numerous creative uses of Smart Profiling, among them the following:

- teachers using *The Smart Profile* to build a case for retaining a child in a regular education setting;
- parents developing a *Smart Profile* of their child to present a case for special services;
- multidisciplinary teams using composite *Smart Profiles* to guide placement decisions;
- psychologists developing a diagnostic assessment battery through evaluation of a student's *Smart Profile;*
- teachers incorporating Smart Profiling of all their students as part of a school-wide restructuring effort;
- curriculum designers creating a curriculum around Smart Profiling;
- teachers utilizing Smart Profiling for all their students as part of a unit on cultures, geography, health, or language arts.

As I have been saying repeatedly throughout these pages, perhaps the most important question to ask about *any* narrative is who suffers and who benefits. Clearly, my efforts have been toward changing the balance of power proclaimed by the prevailing story about intelligence and learning. In my own work using both *Your Personal Smart Profile* and *The Smart Profile,* I have been keenly aware of those who stand both to benefit and to suffer as a result of the dissemination of the new narrative represented by my work. The people who stand to benefit welcome the new story, embracing the ideas that everyone has strength and capability, that everyone's integrity is equal, and that everyone has a unique contribution to make to society.

Thus far, I have tried to make clear the nature of the story I tell. Obviously, my belief is that it is time for a drastic change. In the next chapter, I tell you two stories told from the perspective of the new narrative. The two examples I have chosen illustrate how the profilers have developed a story of how those they have profiled are smart across their

lives, not just in one particular aspect of it. Through the Smart Profiling described in the two examples, each of the people described developed a narrative about themselves (or others) that afforded them an altered perspective of how they or the people they work and learn with think and function in their everyday lives, including the educational settings within which they work.

Who Benefits: The Story Unfolds

The two examples of Smart Profiling I describe in this chapter represent attempts to put into practice the new narrative I have been proposing. You will see that, as with any effort to design and execute a program diverging from the "old" story, the ones outlined here are flawed. In one case, the existing political constraints forced us to modify certain aspects of our plans, while in the other, our plan suffered from severe financial limitations. Nevertheless, I have chosen to tell you about these two programs so you can see, at the least, that it is possible to begin the new story.

The first example describes Project Smart, a language-based empowerment program aimed at teenage mothers and their babies.

PROJECT SMART: LANGUAGE EMPOWERMENT FOR TEENAGE PARENTS

Until recently, I held a university position in which I taught both undergraduate and graduate courses in language. As part of the graduate courses, I arranged for each student, either individually or in a group, to participate in an off-campus experience. I arranged the off-campus sites

to give the students an opportunity to design and execute a project in a real-world setting where they would be able to try out their ideas on a practical level. The projects ranged from constructing an orientation program about language and communication for the recreation and experiential therapists in an adolescent psychiatric treatment center, to organizing and presenting an informal short course on preliteracy development for parents of preschool children, to designing a marketing program for an early childhood center for children with language disorders. One of the projects involving Smart Profiling was Project Smart: Language Empowerment for Teenage Parents.

The graduate students and I designed Project Smart at the invitation of Sandy Briley, who at that time was the director of the Pregnancy, Education, and Parenting program (PEP) at W. R. Robbins Middle School in Austin, Texas. PEP was part of a state-wide effort, funded by the Texas Education Agency (TEA), to enable school-age parents to remain in school rather than dropping out. The PEP program at Robbins was funded to support 25 mothers and their babies. The program provided academic instruction for the mothers and daycare for the children in an on-campus Child Center. As part of their academic activities, the mothers were involved in daily classes on child care and parenting, and they attended regularly scheduled meetings addressing topics of interest and concern. They also participated in individual and group counseling sessions.

When I first talked with Sandy about Project Smart, she expressed excitement at the prospect of using an empowerment model for both mothers and babies. She saw numerous possibilities for reaching the mothers through the concept of developing individual Smart Profiles. More important, she believed we would be able to establish strong communication links with the mothers through focusing on their babies' strengths. We talked about the potential for increasing the mothers' knowledge about their babies' preliteracy skills, along with their knowledge of themselves as learners and problem-solvers.

Our initial goals for Project Smart were threefold. First, we wanted to learn about the feasibility of using a competence-based approach with this group of teenagers. Second, we wanted to see who benefitted from implementing our project. Third, we were interested in the effects of such an approach on the Child Center staff, which included foster grandparents and day care workers.

As we envisioned Project Smart, I would bring in six graduate students (one for each of four mother-baby dyads). I would present an in-service to the academic faculty, school counselor (who had frequent and ongoing contact with the PEP parents), the child development teacher (who was eager to participate in Project Smart), and the school adminis-

trators. The inservice would provide an orientation to the Smart Profile approach to learning, along with opportunities for the participants to develop plans for how they could utilize the approach in their overall teaching, including the PEP parents. Throughout the duration of Project Smart (16 weeks), I would act as a project consultant to the academic faculty, counselor, child development teacher, and administration. In addition, I would provide ongoing inservice talks with the Child Center staff and spend time with them observing the babies and generating descriptions of their preferences and ways of attending during the time they were in the Child Center.

The graduate students, meanwhile, would be interacting with the parents, constructing individual profiles on the basis of their preferences and ways of attending both inside and outside of school. The graduate students would also observe the babies in order to be able to talk to the parents about their babies' intelligences. As I mentioned earlier, the idea was to engage the mothers through a mutually interesting topic — their babies. However, we also wanted to show the mothers how they were smart and how they could use their intelligences in their thinking about their babies, school, family, career, jobs, and friendships.

One of our primary goals was to develop the mothers' awareness of how they could enhance their babies' preliteracy abilities. We anticipated providing models for the mothers showing adults (graduate students and Child Center staff) interacting with the children in ways known to be correlated with preliteracy development. We had planned regularly scheduled, though spontaneous, activities during which adults would read aloud to the children, pointing out specific pictures and words, asking the children what they thought would happen next, and re-stating and rephrasing to highlight the language used in the readings. We wanted to model a conversational approach to pointing the children's attention to sounds, letters, words, synonyms, sentences, and so on.

As director of the PEP program, Sandy was in a rather unusual position. She was responsible for a state-funded program, but she was housed in a building in which the principal was less than enthusiastic about dealing with PEP. The principal's response to accepting the program into her building was to retain administrative control over every aspect of every program underway in the school. Her reluctance to relinquish day-to-day decision-making about the PEP program resulted in some difficult constraints on Project Smart.

To begin, the principal refused us access to the academic faculty, including the child development teacher. The counselor was less restricted because her schedule was flexible; she met with us throughout the 16-

week duration of the project. However, I was unable to meet with the faculty, who remained uninformed about the nature of the project, its goals, and how it was operating. The child development teacher met with the project team several times, but her participation was limited.

The second constraint was that the principal agreed that the mothers could meet with us only during their lunch hours — a time when the majority of mothers wanted to spend time with their babies. Nonetheless, we managed to arrange one group meeting with all the parents to pitch the project. At that time every parent indicated she wanted to participate, even if it meant meeting during lunch time. Thus, we were able to continue our contacts with the mothers, albeit sporadically, as their attendance was erratic.

Because the Child Center staff was under Sandy's direct supervision, we had unlimited access to them. After several weeks of learning about the significant constraints on our original proposal, we realized we must reorganize, focusing on the Child Center staff and the babies. For 14 weeks, then, we were able to observe the babies, talk with the staff, and generate descriptions of the babies' intelligences. During those weeks, we engaged in casual and informal conversations with the mothers. Although we attempted to point out to the mothers how they themselves were smart and paid attention, the most prevalent topic of our conversations was the babies. In addition, after the first few weeks, the Child Center staff changed how they talked about the babies to the mothers, using the vocabulary of empowerment and competence and illustrating the babies' various intelligences through the examples they were recording.

We presented an orientation to the Child Center staff the first week of the project to introduce them to the perspective of abundance, the concept that everybody is smart, the view that individual variation is normal, and the process of Smart Profiling. I had observed the babies several times so that I could provide examples of their ways of attending and behaving as I talked with the staff about Smart Profiling. I asked each person to develop a Smart Profile of her own strengths, taking a week of observing herself and her family to generate descriptions of how she is smart.

During our second conversation, each staff member could describe her own intelligences with remarkable clarity and understanding. We talked at length about the individual differences among this small group and looked at the patterns of intelligence displayed by each person. Our discussion touched on what they had observed about members of their families, and they shared their thoughts about how the Smart Profiling process could explain communication breakdowns and different styles

of doing things such as cooking or keeping financial records. Many staff members talked about their own and others' children, how they were smart, and how that might influence their learning in school.

In our conversations, the staff members determined how they would like to record their observations of the babies, settling on wall posters on which they could write what they saw. The graduate students designed the posters, hung them around the rooms in which the children spent most of their time (infants were separated from toddlers), and recorded some of their observations as models for the staff. I spent considerable time in the Child Center, observing the babies, talking to the staff and mothers, and recording my own observations. Each time I made a record, I would informally tell the staff members what I had seen and why I recorded it as I did. We talked about their own records and the questions that arose for them when they were deciding how to record an observed behavior.

Each poster included the child's name, picture (if available), age of birth, and any special information such as food preferences, feeding schedule, or schedule variations. Under the basic identifying information were eight boxes, each labeled with one of the eight intelligences. The boxes were large enough for anyone to jot a hurried notation with a marker, which was hung next to the poster.

The two foster grandmothers were especially acute observers of the infants. Each grandmother spent several hours each day with "their" babies, holding and cuddling them, feeding them, talking and singing to them, and putting them down to sleep. Each time I or the graduate students visited the Child Center, we would ask the grandmothers what they had observed. As they told us their perceptions, we recorded them on the hanging posters. As the weeks passed, the grandmothers began to collect numerous observations to tell us when we visited so that we could add them to the posters. Toward the end of the project, the grandmothers' observations had overflowed the posters, necessitating adding new posters for some of the children.

By the third week of the project, the Child Center staff reported that the posters had begun attracting the mothers' attention. They wanted to know what was recorded, who had recorded it, and exactly what the baby had done; they wanted the full details of what the observer had seen. As the staff became more proficient at using the vocabulary of Smart Profiling, they directed the mothers' attention more frequently to the individual intelligences exhibited by the babies, showing the mothers how their children were paying attention most of the time, what they sought out when they were awake and moving about, and how they preferred playing or otherwise occupying themselves.

As the graduate students and I observed the babies and conversed with the parents, we began noticing the differences in perceptions about what the babies' behaviors meant. We began to see that what we perceived in one way was sometimes taken by the mothers to mean something quite different. The intent we imputed to the babies' behaviors was perceived differently by the mothers.

For example, one day I was playing with one of the 18-month-old girls when her mother came in to feed her lunch. Shawna and I had been playing a hide-and-seek game full of linguistic cues, mine in the form of words, and Shawna's in the form of babbling — all with the intonation contours characteristic of hide-and-seek. While Shawna was obviously pleased to see her mother, as well as hungry, she was also obviously enjoying playing this interactive game using language. When her mother began feeding her, Shawna continued playing, happily babbling to her mother between bites. When she babbled, she dribbled some of her food out of her mouth.

Her mother responded by telling her she was a bad girl for spitting her food, not recognizing, according to my perception, that Shawna was continuing the game she had been playing before she began eating. Because this mother and I had talked several times previously about Shawna and how she was smart, I asked the mother if she was willing to look at Shawna's dribbling in a different way, one that showed her being smart rather than bad. When she quickly agreed, I asked her if she thought Shawna could be dribbling because she was trying to talk and not because she was trying to frustrate her mother's attempts to feed her. She thought for a moment and responded that what I said might be true, but she wished Shawna would choose some other time to show how smart she was by talking!

When we first began planning Project Smart, Sandy and I and the graduate students had assumed our primary focus of attention was the parents. As our plans changed to meet the constraints imposed by the principal, and as we interacted with the parents and the Child Center staff, we swiftly shifted our targets. In spending most of our time with the babies and the Child Center staff, we built an indirect conduit to the parents. The staff members, who often talked with the mothers several times each day, had many more opportunities than we to talk, via the posters, about the children's profiles and emerging intelligences. As the staff developed their knowledge about the Smart Profiling, they incorporated it into their conversations with the parents. By the end of the 16 weeks, many of the mothers were speaking of their children's many ways of being smart, frequently comparing their child's profile with that of another child and noticing how each exhibited something special and unique.

In our postproject evaluation, we arrived at six conclusions. First, all of us involved — Sandy, the Child Center staff, the graduate students, and I — concurred that using a competence-based empowerment model in this particular setting is feasible. What we learned through our pilot is that we must identify clearly at the outset who are the primary recipients. Until we realized that the Child Center staff and the children would receive the bulk of our attention, we were frustrated at the administrative constraints placed on the project. Perhaps more important is that we learned that we could operate an empowerment project despite formidable barriers. What was needed was ingenuity to construct alternatives to our original plan.

Second, we learned that the Smart Profiling process can be applied to very young children, as young as 2 months. The foster grandparents were able to discern the babies' attentional preferences toward talking, music, hanging mobiles, physical contact and cuddling, being left alone for periods of time, and interacting with others. Of the eight intelligences, only logical and mathematical were not observed in these babies.

Third, we discovered that the profiling can proceed despite significant cultural differences between profilers and profilees. Although most of the mothers and babies represented cultures different from those of the graduate students, the graduate students were able to construct representative profiles of the mothers, albeit brief ones based on casual conversations. The PEP counselor, who knew the parents well, confirmed the students' profile hypotheses about the mothers. In addition, the foster grandparents, who represented a different cultural and racial background from the Project Smart team, easily understood the profiling process, as well as the underlying perspectives and concepts. They readily applied the Smart Profiling to the babies under their care and supported the observations made by members of the Project Smart team.

Our fourth discovery was that the adult PEP participants in Project Smart continued to use the Smart Profiling concepts and terminology after the program ceased official operation in the school. The Child Center staff maintained the poster descriptions of the children, and they constructed new posters for children new to the Center. Sandy indicated that several of the mothers continued asking the staff about their children's intelligences and wanted to know if they could record their own observations on their children's posters.

Fifth, we relearned the adage that it is easier to implement a program if the people involved think of it themselves. Although we had the sponsorship of the PEP director, the school administrator was resistant. Her reluctance resulted in our inability to access the faculty, as well as our limited access to the teenage mothers. In our future efforts to implement similar programs, we will address this important variable at the outset.

Sixth, the people who benefitted most from Project Smart were the Child Center staff, the director (Sandy), and indirectly, the babies. In addition, the graduate students gained knowledge through their 16-week experience in the program. As the project was implemented, the benefit to the teenage mothers was less noticeable than we had hoped at the outset.

Project Smart was an exploratory project carried out over a short period. Project ABLE, which I describe in the following section, was developed as a year-long program and involved the collection of significant amounts of material for analysis and evaluation.

PROJECT ABLE

Over a period of months during 1987 and 1988, a group of people affiliated with Ernie Pyle Middle School in Albuquerque, New Mexico, met to write a restructuring proposal to submit to the district (referred to by people in the district as APS, for Albuquerque Public Schools). The group consisted of four people: two teachers of students identified as having behavior disorders (referred to as BD), Paul Meeker and Sam Obenshein; a special education administrator from the district, Anna Zamora; and a special education liaison from the University of New Mexico (UNM) and APS, Chris Newbill. Their goal was to propose an alternative to traditional programming for students with BD.

In the previous chapter, I introduced Anna and Chris when I described the origin of *The Smart Profile*. You will recall that, when the idea for *The Smart Profile* was conceived, the three of us were conversing about the lack of instruments available to describe students' strengths and competencies. In part, we were referring to Paul and Sam's students at Ernie Pyle.

Most programs for students with behavior disorders evolved from a behaviorist orientation in which teachers reinforced desired behaviors and extinguished undesirable responses through the use of classroom management systems based on token economies (Kroth, Whelan, & Stables, 1972). Most teachers refer students for evaluation of a behavior disorder based on their feeling of discomfort or concern about a particular child (Miller & Newbill, 1992). Their concerns center primarily on the students' absence of academic or social knowledge, and frequently inappropriate behavioral episodes that are unexpected or catch teachers by surprise.

In most schools, students are identified as exhibiting behavior disorders through the collection of lists of the students' behaviors, typically

in the form of "deficits and excesses" (Meyen & Skrtic, 1988). Excesses include behaviors that occur too frequently, such as fights or temper tantrums. Deficits include expected behaviors that are absent, such as the lack of friends or lack of participation in the classroom. Once a student has been identified as having a behavior disorder, he (the vast majority are boys) is placed in an intervention program.

Historically, a behaviorist approach to intervention has dominated the field (Miller & Newbill, 1992). The philosophy underlying the behaviorist approach to intervention with behavior disorders exemplifies both reductionism and the perspective of deficiency. Behaviors are believed to be isolatable and subject to change through the manipulation of antecedents and consequences to the behavior under scrutiny. Typically, this manipulation occurs without regard to the context within which the offending behavior occurs, and data are kept to describe the degree to which an identified behavior undergoes change as a result of the manipulation.

In the typical BD classroom, the focus is on the dysfunction in each student. The model stipulates that what is wrong lies in the student and is under the student's control, either conscious or unconscious. Within the classroom, the intervention centers on remediating the dysfunctional behaviors and generalizing appropriate behaviors outside the classroom.

The group from Ernie Pyle Middle School was committed to developing a BD program that challenged the traditional approach described in the preceding paragraphs. It was particularly fitting, then, that their BD program would be one of the first to utilize *The Smart Profile*.

In 1988, Sam was in an internship at Ernie Pyle Middle School, where Paul was the primary teacher in the BD program. Chris, as Sam's supervisor from the UNM, was in the Ernie Pyle BD classrooms on a frequent and regular schedule and had a clear knowledge of how the program operated prior to the restructuring effort. Anna was acting as a transition coordinator for the South Area of the school district, and Ernie Pyle was one of the schools in which she spent a good portion of her time. Her efforts were aimed primarily at smoothing the transitions of students (and their families) as they changed from elementary school into the middle school environment and from there to high school. In addition, her caseload encompassed the special education students, which included the students in the BD program at Ernie Pyle.

At that time, Ernie Pyle Midle School was involved in a building-wide restructuring effort. Chris and Anna, working closely with the development of *The Smart Profile*, suggested submitting a separate restructuring proposal for the BD program based on *The Smart Profile*. Louis Martinez, then the principal at Ernie Pyle, agreed, and they began draft

ing their basic philosophy and principles for the new program. In their discussion, the group emphasized independent living for the students, as well as a considerably expanded curriculum. The core of the proposal was the enhancement of the students' self-descriptions as competent, able learners. Thus, the program derived its name: ABLE, for Adapted Behavior Learning Environment.

As discussion progressed, the group agreed that the learning environment, the "classroom," must extend beyond the traditional classroom and its physical confines into the larger communities of the surrounding neighborhood and city. While the traditional academic content areas were included in their proposal — albeit in nontraditional structure or form, as I describe later — two program components were chosen for extension into the community: recreation and prevocational. Because these students had been identified as needing real-life experiences and opportunities, the recreation and prevocational components were seen by the group as comprising the core of the newly structured program.

In the proposal, Anna, Chris, Paul, and Sam described the classroom as a rehearsal laboratory for the recreational and prevocational experiences the students would experience during the year. Thematic units were seen as supports for the recreation and prevocational experiences, with field trips incorporated into the units to exemplify the themes chosen for study.

In their final proposal to the district, the group chose to describe the ABLE program in terms of seven domains: academic, physical education/recreation, the arts, prevocational/vocational, extended school year, counseling/social skills, and staff development. They further identified the components comprising each of the domains. Taking them one at a time, beginning with academic, the components are as follows.

In the academic domain, the proposal identified three components: literature and language arts, math, and science/social studies. The physical education/recreation domain included four 9-week units: bowling, hiking, gymnastics, and swimming. In the arts domain were four units: art appreciation, music appreciation, performance arts, and art experience. There were five units in the vocational/prevocational domain: using public transportation, accessing community environments, training in social skills for using community facilities, banking skills, and career exploration. The focuses of the extended school year domain were continuation of group therapy, remedial academics, camping experience, and supported summer employment. In the counseling/social skills domain were parent education, group counseling, social skills, and health. Finally, the staff development domain included training in *The Smart Profile*, consultation with the psychotherapist, continuing education, conference attendance, and tuition support.

Because Anna, Chris, Paul, and Sam wanted to emphasize the students' competencies and abilities, they incorporated *The Smart Profile* into several components of the proposed program. In describing the profile and how they would utilize it throughout the year, the group recommended having each student develop her or his own profile at the beginning of the school year, with three or four updates during the year. In addition, the teachers would develop their own profiles to analyze how they could incorporate their own ways of being smart into their teaching. The profiles generated by the students (with the teachers' assistance) would provide us with a means by which to follow the students' growth and learning during the school year, as well as provide us with information about how to design instruction that would be likely to capture the students' and teachers' curiosity and interest.

Once the proposal was accepted by the district, all the people involved in writing the proposal, along with Louis Martinez and myself, met with the students and their families to talk with them about our ideas for the upcoming school year. We outlined the proposed program, emphasizing that it would focus on how the students (and their families) were smart and competent. We detailed the recreational and prevocational components, along with the planned group therapy sessions for the students and the parent meetings with a psychologist.

The response to our plan was overwhelmingly positive. Several parents told us they had never before heard anyone from the schools speak positively about their children. One mother told us with tear-filled eyes about the relief she felt at last to think that her son would have a chance to learn what he was good at doing and how he was capable of learning. During the hour-long meeting, most of the students listened to what was being said. Some drew as they listened, and some stood in the back of the room. The most noticeable behavior was one that, though typical of these students in most school situations, was missing on this day. None of the students interacted with each other in a negative way even though the meeting was a major disturbance in their routine. Outside the usual confines of their daily schedule, the students were able to sit or stand without disturbance for nearly an hour, listening to adults talk.

Once the parents had embraced the program, Chris and I designed a summer course for the teachers to orient them to the profiling: how to apply the profiling to students, to curriculum, to the physical layout and materials in the classroom, and to the structure and sequence of events during each day and across units. During the 2-week course, the teachers tried out the profiling on themselves and each other, listened to my descriptions of other programs using the profiling, and watched me interview one of their students and his mother as part of the profiling process.

In addition, the four of us talked at length about how Paul and Sam could incorporate the eight smart patterns into their classrooms and into the recreational and prevocational components of the program. In their discussions during the writing of the restructuring proposal, the group had constructed a matrix showing how each of the eight smart patterns would be addressed by six of the seven domains described previously. The staff development domain was not included in the matrix, as everyone agreed the purpose of the grid was to illustrate how the eight intelligences would impact the students' lives. Figure 6–1 shows the matrix.

Using the matrix shown in Figure 6–1, the teachers decided on their first unit for the coming school year, began planning their daily schedules, and started collecting materials. Their choice for the first unit was communication. Sam and Paul organized their schedules to include student exploration of the kinds of jobs characteristic of the communication settings they would visit, as well as the types of communication required in each (e.g., a radio station, television station, or newspaper). The unit called for each student to research the various jobs to be found in each of the settings, while at the same time attempting to match her or his competencies (as determined through the self-profiling) with each job. In addition, the students would each interview at least one person on site during each field trip, constructing a profile of the person's job for later comparison with their own personal profiles. The teachers planned for students to summarize their field trip findings and research and to generate stories about the career possibilities they had discovered. In each unit, the classroom would be used as a "home base" for the students, where they could safely explore and investigate their own learning and discoveries. The teachers also anticipated having the students try out new ways of communicating based on their research and field trip findings.

As part of their summer planning for the communication unit, Paul and Sam directed their attention to the communication and language the students could learn about in the recreational strand of the program. In anticipation of the recreational experiences planned each week, the teachers designated the classroom as the place to explore such communication and language issues as:

- What sorts of private conversations are appropriate in public places?
- What kind of communication can you appropriately use in a public place if something unanticipated occurs (e.g., the candy machine takes your money but does not dispense the candy)?
- What kinds of communication and/or language is likely to call attention to you in a public place?

	Linguistic	Logical Mathematical	Spatial	Musical	Bodily Kinesthetic	Intrapersonal	Interpersonal
I. Academics	Literature Language Arts Social Studies	Science Math	Integrated Curriculum Perojects	Multi-cultural Units		Personal Interests	Cooperative Learning
II. PE / Recreation	Social Discourse	Board Games	Bowling	Dance/ Movement	Swimming Hiking Horseback Riding Bowling	Exploring Interests	Social Skills in Public Settings Sportsmanship
III. The Arts	Interpretation		Visual Art Experience	Music Appreciation	Performance of literature Experience	Exploring Interests	Working in Small Groups
IV. Prevocational Vocational	Role-Appropriate Discourse	Job-Related Skills Banking	Job-Related Skills Transportation	Carreer Exploration	Career Exploration Transportation	Exploring Interests Career Exploration	Job-Related Social Skills
V. Extended Year	Maintaining Skills	Maintaining Skills			Camping		Group Therapy
VI. Counseling	Processing Experience	Media – Using Media for Analysis	Media – Using Media for Analysis	Relaxation	Relaxation The Quieting Response	Understanding One's Self	Group Therapy

FIGURE 6-1. ABLE and *The Smart Profile*.

- What communications and behaviors are likely to get you kicked out of a public place?

During our summer course, we developed two new tools for record-keeping and reporting. One was a daily point sheet for each teacher's classroom, and the other was a pupil progress report. Using the perspective of abundance and competence, Sam and Paul designed a daily point sheet to show each student's strength and ability in exhibiting desired behaviors in the classroom. Figure 6–2 shows the daily point sheet in detail.

Paul and Sam wanted the daily point sheet to reflect the students' abilities in three areas: being a good student ("schoolchild" behavior — at this time all their students were boys), interactions with their peers and teachers, and behaviors reflective of each student's personal goals. The "schoolchild" behaviors the teachers focused on were being on time for class, being prepared with the appropriate materials in hand, going to work quickly and readily, completing the assignments given, showing effort and being focused on the task, and remaining either in one's seat or the immediate work area. Social behaviors of interest to the teachers were the student exhibiting that he could keep his hands, feet, and possessions in his own area and away from his peers, showing attention to his personal appearance, respecting others' property, communicating in a positive manner (e.g., through using affirmative language), and showing self-respect through positive self-talk. Personal goals designated on the point sheet were demonstrating physical and mental fitness, showing attention to personal hygiene, ability to work in the group, and working with a partner during cooperative learning activities. In addition, Sam and Paul included in the personal goals section four additional columns in which they and/or the students could add personal goals unique to each student.

The point sheets are partitioned into seven rows, one per class period for each day. There is space for point subtotals following the morning periods (periods 1–4) and afternoon periods (5–7), as well as space in which to record the cumulative points for each day. The teachers used the points accumulated on the students' daily point sheets to determine privileges, which included participation in class trips (a camping trip in the fall and a ski trip in the winter) as well as awards including cassette tapes, soft drinks, snacks, listening to music under headphones, computer use, and solo reading or drawing.

The pupil progress report we designed is based on one I had seen during a visit to the Key School in Indianapolis, Indiana (The Key School, 1990). The Key School is a public elementary school designated as a magnet school. Its program structure and classroom operation,

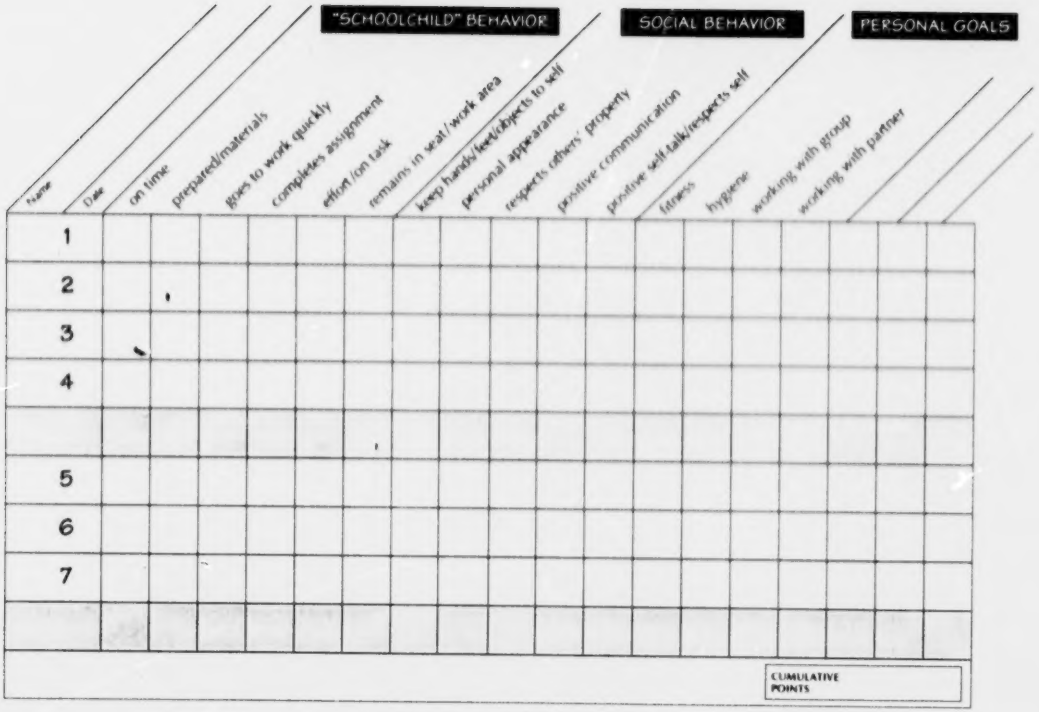

FIGURE 6-2. The ABLE daily point sheet.

based on Gardner's multiple intelligences, are reflected in a pupil progress report the faculty and administration devised to show parents their children's progress in each intelligence. Chris, Anna, Paul, Sam, and I modified the Key School's report form to suit the unique setting at Ernie Pyle Middle School. Our result is shown in Figure 6–3.

The progress report is based on indicating the student's progress in each of the eight intelligences through use of the descriptive scale I described in Chapter 5. Designed in a double-sided format, the report shows the student's level of progress (prebeginner, beginner, strong, stronger, strongest) or type of participation (active, including intrinsically or extrinsically motivated, passive, or disruptive) across the eight areas of thinking.

Several comments are pertinent to understanding the progress report. First, we used slightly different terminology to describe the eight intelligences. We referred to intrapersonal thinking as "self," and used "other" to indicate interpersonal thinking. Second, we subsumed the content areas of the program under each of the eight intelligences rather than reporting on science, or social studies, or English. Thus, for instance, reading, writing, and oral communication — components of many of the content areas — are included under linguistic intelligence, while identification of questions, patterns, and relationships, drawing conclusions, problem-solving, and research skills are listed as aspects of logical intelligence. Third, we presented a listing of the intelligences used during student presentations of individual projects to show their preferred intelligences for each. In addition, using the strength scale, we indicate for individual projects the level of the student's quality of work, ability to express ideas, ability to connect project with theme, and ability to connect project with the student's own future goals. Fourth, we signify the importance of parent and student participation in the progress report by including space for student, parent, and teacher comments following each quarter's parent/teacher conference.

Once the school year began, Paul and Sam began instituting the plans they had developed during the summer training course. At the beginning of the year, they introduced self-profiling to the students, who began gathering evidence about their habits of paying attention, their preferences in how they paid attention, and what they seek out on a regular basis. Using Smart Profiling allowed the teachers to do three things they had identified as objectives during their summer planning. First, they could steer away from traditional norm-referenced tests that showed the students what they already knew — that they differed significantly from their age-peers. Sam and Paul reasoned that, through using the self-profiling, the students would see that significant deviation from

any normative group, that is, their peers at Ernie Pyle Middle School, signaled difference rather than impairment.

Second, using the profiling (which included both the student self-profiling and the teachers' profiling of each student) shifted those involved in the program away from numeric representations of the students and into a narrative description. Sam and Paul wanted the narratives to use in designing the remaining three units and to tailor their unit plans to the students' strengths.

Third, using Smart Profiling turned everyone's attention to strength and competence rather than disorder. The teachers anticipated that the new vocabulary offered through Smart Profiling would afford the students an opportunity to alter their views of themselves as learners. Because most of the students in the BD program had been told either directly or indirectly that they weren not smart (through testing or the fact of placement in this program), Paul and Sam were committed to attempts at reversing students' negative perceptions of themselves.

As Chris and I have pointed out elsewhere, the profiling process provided a means for the students and teachers to organize their everyday observations of student behaviors, preferences, motivations, and interests, both inside and outside of school (Miller & Newbill, 1992). The narratives were collected over a period of weeks to allow ample time for gathering representative evidence showing each students' profile across the eight intelligences. Paul and Sam then used the information gathered through the profiling to design the remaining units of instruction and to plan the vocational/prevocational and recreational activities.

During the first semester of 1989, Chris made weekly visits to Sam and Paul's classrooms, and I made three consultative visits to the teachers, students, and administrators of the ABLE program. During our visits, Chris and I focused not only on how the program was unfolding, but on the evaluation components. Specifically, we wanted to answer four questions.

1. Is a middle-school BD program based on strength and competence feasible? In other words, what is required to design and execute such a program?
2. What are the effects — on students, teachers, administrators, parents, community — of designing a BD program based on the perspective of abundance and competence?
3. What can we learn about the students when we take a competence approach?
4. What can we learn about the teaching requirements when using a competence approach?

Sample Pupil Progress Report
XYZ School
Albuquerque Public Schools

Student Name: _____

Telephone Number: _____

Grade: _____ DOB: _____

Teacher: _____

Principal: _____

To Parents or Guardians:

The purpose of any reporting is to give you an accurate picture of your child's progress. It is hoped that the Progress Report being used this year will give you the kind of information that you, as parents, will want to know about your child. Your child's progress will be measured on individual academic growth. We encourage you to call or visit the school any time you have a question about your child's school work. In addition, we also welcome your suggestions on how to make this Progress Report more meaningful to you.

Sincerely,

Principal

Reporting Period

_____ TO _____

ATTENDANCE REPORT

Reporting Periods

	1	2	sem.	3	4	sem.
days present						
excused days						
unexcused days						

Eight Intelligences

Linguistic

English
- oral communication
- writing
- reading
- participation

Comments _____

Spanish
- oral communication
- writing
- reading
- participation

Comments _____

Musical
- exploration
- technique
- auditory awareness
- rhythm
- participation

Comments _____

Logical
- can c.d. questions, patterns, relationships
- draws conclusions
- problem-solving
- participation

Comments _____

Computer
- participation

Comments _____

Research
- participation

Eight Intelligences (Cont'd.)

Mathematical
- computation
- operations
- concept
- participation

Comments _____

Spatial
- recognizes patterns & connections
- composition
- craftsmanship
- expresses ideas through artwork
- understands spatial representations
- participation

Comments _____

Bodily
- body awareness & movement
- physical education skills
- physical fitness
- general health/ nutrition
- bodily communication
- participation

Comments _____

Self

Intelligences most frequently used
- linguistic
- musical
- logical
- mathematical
- spatial
- bodily
- self
- others
  - completes projects
  - hygiene
  - personal appearance

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Eight Intelligences (Cont'd.)

Self (Cont'd.)

Comments _____

focused area of interest ☐
flexible thinking ☐

Comments _____

Others

Concepts
shows respect for basic human rights ☐
recognizes patterns & connections with other cultures ☐
participation ☐

Comments _____

Social/Behavioral Citizenship
cooperates with teacher ☐
cooperates with classmates ☐
meets responsibilities ☐
sets goals ☐
respects own & others' property ☐
participation ☐

Comments _____

Leadership
uses influence for the greater good ☐
provides service ☐

Comments _____

Presentation of Individual Projects

Intelligences used
- linguistic ☐
- musical ☐
- logical ☐
- mathematical ☐

Presentation of Individual Projects (Cont'd.)

Intelligences used
- spatial ☐
- bodily ☐
- self ☐
- others ☐

1. quality of work ☐
2. ability to express ideas ☐
3. ability to connect project with theme ☐
4. ability to connect project with own future goals ☐

Comments _____

Description of Terms

STR **Strongest:** learner's greatest strength

ST **Stronger:** learner has developed considerable strength but is not yet at strongest level

S **Strong:** learner has developed strength in this area of learning

B **Beginner:** willing to engage in new learning, to not know something, to make mistakes, to not be able to generalize easily, to take a long time getting better

P **Prebeginner:** unwilling to engage in new learning, to not know something, to make mistakes, to not be able to generalize easily, to take a long time getting better

Participation

Active Participation

Δ intrinsically motivated

• extrinsically motivated

o **passive**

x **disruptive**

Parent/Teacher Conference Notes:

Student's Comments:

Teacher's Comments:

Parent Signature(s)

Student Signature

Teacher Signature

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FIGURE 6-3. The ABLE pupil progress report.

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With these questions in mind, we developed a list of the information we thought we would need to address them. Though we used only some of the sources listed below, I include them here to show that while we were planning how to evaluate the program, we anticipated needing information from a wide variety of sources:

- fall and spring administration of the *Piers Harris Self Concept Inventory* (Piers, 1984);
- daily behavior point sheets;
- student self-profiling (four each school year, with teacher assistance);
- student knowledge displays, including school-based projects across the eight intelligences; daily participation; products such as written work, artwork, music; oral presentations, dance or drama projects; athletic and recreational activities;
- administration of a teacher questionnaire (four open-ended questions about their understanding of the program, their hopes and expectations for the students, and how they thought the program would affect/has affected the students and their families);
- student behavioral referrals, including number and type;
- parent contacts, including frequency and nature;
- frequency and nature of contacts with other agencies, including juvenile authorities, half-way houses, social services;
- results from fall and spring administration of the *Brigance Inventory of Essential Skills* (Brigance, 1980);
- grades earned in class;
- fall and spring administration of the Prutting-Kirchner pragmatics protocol checklist (Prutting & Kirchner, 1987);
- behavioral referrals;
- fall and spring administration of counselor questionnaire (similar in format to teachers' questionnaire);
- fall and spring administration of a parent questionnaire (similar to teacher questionnaire);
- counselor evaluation;
- attendance, including frequency and reasons for not attending; and
- evaluation from an external review team.

At the end of the first year of the program's operation, we have made seven discoveries. Though our findings are modest, they indicate to us that the program carried significant impact for those involved. Perhaps more important is that at least two of the principal players in the

program (Chris and Paul) are committed to finding funding to support fully a new program based on exactly the same philosophical orientation and perspective but incorporating what we learned from our first year of operation.

One of our most important findings is that the students in this program are strongest in spatial and bodily intelligences. Among their least strong intelligences is linguistic thinking. The implications of this finding are enormous. Paul, Sam, and Chris became aware early on in the school year that the counseling and group therapy sessions based on talk therapy were inappropriate for these students. They realized that the most promising avenues for intervention lay in the bodily and spatial realms.

As a consequence of this first finding, the therapeutic aspects of the program were shifted to the physical education/recreation and prevocational components. Paul and Sam contracted with recreation therapists to provide planned activities for the students in which they were enabled to explore issues of importance to them. In addition, the teachers incorporated large blocks of time for art, particularly drawing and painting, during the school day. They also began playing music throughout the school day as a nonlinguistic frame for student classwork and studying. In their planning of unit activities, the teachers included ample opportunities for the students to engage in hands-on experiences, role-playing, and dramatic renderings of situations or concepts.

To provide the students with success in linguistic thinking and action (both oral and printed), Paul and Sam developed regular opportunities for the students to tell and write narratives about their field trip experiences, as well as the practical activities in which they engaged at school. Students were introduced to the computer as a means of stimulating interest in writing and storytelling. Each week, the students conducted a class meeting in which they learned how to conduct a business meeting, with emphasis on how to speak, what to say, and how to organize one's thoughts into relevant speech. Following the meeting, each student wrote a description of what transpired during the meeting, including the conclusions and outcomes.

Our second finding was that the teachers needed scheduled, mutual meeting time. Without regularly scheduled planning time, Sam and Paul found themselves losing track of their objectives as well as the daily happenings in each other's classrooms. Further, the teachers and their classroom aides voiced a desire for mutual planning time to develop strategies for operating and maintaining the program as it unfolded, as well as for planning its continuation during upcoming phases.

Third, we learned that the teachers and aides needed ongoing support from people outside the program. While Chris made weekly visits

and I was available every other month, Paul and Sam found that, with this particular population of students, they needed an administrative assistant to handle the sorts of daily occurrences typical of the program. For instance, as part of their school day, the teachers fielded phone calls and visits from parents, juvenile officers, parents, district administrators, people from the community, and those inquiring about the program. In addition, if a student required special assistance, the teacher would have to ask the student to wait or turn over the classroom to the aide — sometimes possible, but not always feasible.

Fourth, we discovered that the students learned best when planning for their field trips, going on the trip, and processing what had happened following their return. During the year, the students had visited one of the local newspapers, a radio station, and a hospital. As I mentioned previously, in preparation for each trip, the students developed an explicit statement of their personal profile at the time. They also researched the jobs available at the site they were to visit, and each student developed an interview he was to carry out with someone on site. While at the site, the students listened to lectures about the facility, toured the physical plant, and conducted their interviews. On their return, they wrote narratives about their findings, they role-played situations that had occurred during the visit, and they developed profiles of the jobs they had researched. Some students chose to illustrate their narratives or to include graphic information supporting what they had written.

Fifth, the program generated considerable interest throughout the district and the community. Sam and Paul reported that they talked to a significantly larger number of people during the year ABLE was in operation than in the previous year. Inquiries about the program from within the district came from teachers in other BD programs, special education administrators in other regions of the district, and principals of elementary schools within their same region. A mark of the interest ABLE generated is a proposal to the state for an innovative BD program submitted by several special education administrators from APS using the ABLE program as a model. Inquiries from outside came from parents of children in other BD programs, mental health workers at one of the psychiatric hospitals in Albuquerque, and recreation therapists who had heard of the program from colleagues.

Sixth, we learned that replacing numeric evaluations of these students with word-based descriptions quickly became habitual and preferable to everyone involved, most especially the students. We found ourselves describing students in terms of their strengths and habitual ways of exhibiting intelligences, where the prevailing practice among most educators is to describe them in terms of deficits stated through refer-

ence to grade-level achievement or age-level equivalents. For example, when we continually referred to Frank's strength in bodily intelligence, he began to consider seriously the possibility he could be mainstreamed in his neighborhood high school and play varsity football. Prior to our emphasis on his bodily intelligence, he had not believed he had any reason to try to be mainstreamed.

Seventh, the teachers voiced their commitment to continuing the ABLE model if funding were available. Funding for the first year was piecemeal but adequate for the initial year. However, the second year was worse because the district faced a severe shortfall of funds to support "ancillary" programs such as ABLE. As a consequence, for 4 months of the second year, the teachers were unable to find support for significant aspects of the program, including recreation therapy and field trips — identified as two of the most worthwhile aspects during year one. Nonetheless, both teachers remain dedicated to maintaining a perspective of abundance and competence, regardless of funding support. In the meantime, they maintain a reduced program with limited financial and administrative support.

As I pointed out earlier, both Project Smart and ABLE represent attempts to put into practice the telling of our new narrative. Both projects were grounded in the philosophy of abundance and based on the belief that everyone is smart and can learn. Not surprisingly, as first attempts they seem woefully inadequate in some ways. Nevertheless, each program offered numerous opportunities for all involved to talk differently about intelligence, learning, and the worthiness of every person.

An image stands out in my mind. It involves one of the foster grandparents at the day care center, rocking in her rocking chair, holding an infant new to the program. As she rocks, she is dictating to one of the other staff members, who is writing on a newly constructed Smart Profile poster for this child. The foster grandmother is saying, "This child turning his head toward the music *every time* that player go on!" And she throws her head back to laugh with pleasure at her recognition that the baby she is rocking is paying attention to *music*. At her laugh, all the babies stop what they are doing and look toward her. At that moment, watching the people in that day care center, I was sure exactly who — and how many — were benefiting.

THE STORY UNFOLDS

One of the dangers of offering a critique of any given perspective or belief system is assuming it possesses little or nothing of value. A second

danger lies in regarding an alternative system as a complete replacement for the "old" one. I want to make clear that what I have been attempting in these pages is to return a vital component to our story of what it means to be human — not to replace the old story altogether. The new narrative I have been weaving returns to a privileged position the sorts of thinking exhibited by people of all cultures as they engage in the visual and graphic arts, music, poetry and stories, dance, emotions, and relationships.

The narrative also includes description of people as they calculate and organize, reason and hypothesize — the modes of thought accorded superiority in previous stories. Unlike those previous versions, the power of the new story lies in its inclusion of the full range of what it means to be human. It does not supplant the story of science and technology. Rather, it incorporates that story into its structure, along with all the other forms of human thought. Grounded in an ethic of caring and an optimistic perspective, the new story enjoys a vitality and vigor distinct from the old one, with its abstract, distant, and hierarchical explanations.

I am reminded of a painting by Georgia O'Keeffe, titled "Music — Pink and Blue I." In a reminiscence written in 1976, O'Keeffe recalled hearing music coming from a classroom one day while walking down a hallway at Columbia University (O'Keeffe, 1976). Intrigued, she went in. The students, listening to what O'Keeffe called a low-tone record, had been instructed to make a drawing from what they heard. O'Keeffe followed suit, producing a quick drawing in response to the music. Then the instructor played a very different kind of record, what O'Keeffe called a "sort of high soprano piece," which gave her the idea that she could translate music into something for the eye. "Music — Pink and Blue I" is her translation: the colors, lines, and movement suggesting a lyrical voice soaring through welcoming spaces, inviting the viewer to hear the song.

In contrast, consider Hofstadter's description of Bach's invention of a six-part fugue for King Frederick the Great of Prussia in 1747 (Hofstadter, 1979). Hofstadter tells us of the difficulty of creating multiple part fugues by describing the many aspects that must be juggled by the composer. For example, each of the parts, called a voice, must be part of the melody, as well as a harmonization of the same melody. In addition, themes are copied, or reproduced, throughout the fugue, meaning that they are staggered in time and in pitch. Further, each voice may be speeded or slowed in relation to the others, and the copies of the original theme may be inverted — wherever the original theme goes up the scale, the copy goes down by exactly the same number of semitones. And, to make the fugue more complex, the composer can insert a copy of the theme so that it unfolds backward.

Hofstadter's description of Bach's invention translates his music into logical terms, while O'Keeffe's description (a painting) evokes, through spatial metaphors, an aspect of music invisible to logic. Though apparently mutually exclusive, both are right. Both describe a reality accessible to and used by large numbers of people. Neither is superior to the other. Each offers a unique perspective, but neither tells the whole story.

As I have pointed out many times throughout these pages, perhaps the most important questions to ask about any narrative of human thinking and activity are: Who benefits from the description, and who suffers? A narrative that awards privilege to some people while withholding it from others enjoins our strictest scrutiny and inquiry. I have shown, especially in the early chapters, how the old narrative bestows power on people strongest in mathematical, logical, and linguistic thinking. By default, this means that people strongest in musical, spatial, bodily, intrapersonal, or interpersonal thinking are discriminated against, particularly in our schools. This latter group enjoys little or no power in their formal learning. In fact, they are considered deficient at learning or thinking, their impairments and disorders reinforced through their failures in the competitions engendered by the old narrative.

Power is at stake — personal power, political and social clout, cultural currency. Those underprivileged by the prevailing narrative suffer through exclusion and impoverishment, whether economic or emotional (or both). Our society suffers from the loss of its disenfranchised members, who watch with rage from the sidelines of the dominant story. A retelling is overdue.

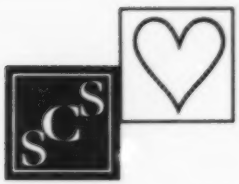
I frequently think of my junior high students in Colorado, wondering what has become of them. Are they happy? Do they believe in themselves? Do they believe they are capable and smart, able to learn and continue learning? Do they see themselves as powerful? Marginal? Mainstream? What are they teaching their children about intelligence, thinking, and learning? Although I know little about what has happened to them, I remain indebted to them for their audacity, humor, strength, and spirit. In many ways, they began this new narrative through challenging my belief in the old one.

"I AM SMART: WE ARE SMART"

Telling you my ideas for a new narrative is my way of inviting you to participate in its telling. As you no doubt see by now, I believe each of us is smart in some very human ways. The ethic of caring returns to us those

segments of our humanness obscured by centuries of emphasis on abstract, objective, and emotionless thought. With this ethic we honor our feelings and judgments, our unique perspectives as subjective thinkers. By basing our new narrative on this caring ethic, and in so doing returning affect to the realm of the dominant story about being human, we achieve a profound shift in our thinking. Couching our explanations in an optimistic explanatory style, we begin a new narrative of what it means to be smart and to learn. Our new narrative privileges not only objective and rational thinking, but the subjective and judgmental thinking that is rooted in the universal emotion of caring.

The narrative weaves a story of human relatedness and uniqueness, human diversity and flexibility. It affords respect to all humans equally through recognition of the ordinariness of each person's idiosyncracy and difference. This narrative invokes the full breadth of human potential. Reason, logic, objective observation, criticism, and evaluation emerge from the same human creature who feels and expresses hate, anger, love, justice, mercy, judgment, and subjective perception. All are human and must be incorporated into the narrative. I invite your generous and joyful participation in the weaving of this new story.



Epilogue

In this part of our conversation, Chris talked about a child she had worked with.

Chris: I worked with a kid last year who was school phobic. You have to understand that I get really dysfunctional situations. I don't get to go into marginal situations. I get it when it's all about to come undone. This particular child, who was in second grade, was hyperventilating, screaming, kicking, being carried into the school, forcing him into the school. So it was a bad situation. They wanted to put him in a BD class, and he was saying he was frightened, he was terribly frightened. So I went in and began working with the classroom teacher, and I did not want the child put in a separated class.

He had been abandoned by his mother at about age 3, I believe. She just took off. It's a long story. The father's mother pretty much drove the natural mother away and pretty much took this child on as her own child. There was lots of crap in the family situation, lots of stuff going on. She [the grandmother] basically made it very psychologically unsafe for this child to leave. He slept with her. He always felt when he left for school that they might not be there when he got home, so he had these long rituals of them bringing him to school in the car and sitting with him at breakfast and then when it got time to separate, he would throw this huge fit which would make grandmother feel very important, and so it had gotten to the point of extreme.

Of course, all the dysfunction was focused on the child because he would actually hyperventilate in the hall and put on a big show for everybody: "I will get bizarre enough so that you will call them to come and get me."

So I began working with the classroom teacher and the grandmother and the dad, who live together. We developed a plan based on his strengths, and I asked them to give me a couple of months to work on the situation and then we would re-evaluate it. So I didn't just say, "No, you can't put him in a special class."

What we did was set up some activities. I profiled him myself. I didn't really do a formal profile with the teacher, but I talked a lot about his strengths and what I observed in him and how we needed to tap into his strengths and his interests to get him more interested in school and help him understand that *he* had control over more of his world than he realized.

I cannot tell you how I figured out how to do this. I just kept my fingers crossed that it would work. There was a woman in my office who had a rubber stamp of a dragon. Did I tell you this story? And the dragon had a little boy sitting in his hand. So I stamped it on a card and I took it out there and I showed it to him, and I said, "What do you see?'

And he said, "I see a dragon."
I said, "Well, what's in his hand?"
He said, "A little boy."
I said, "What do you think is gonna happen?"
He said, "The dragon's gonna eat the little boy."

I said — this is a very spatial kid, I should've said that — "No he's not. He's whispering to him, and he's telling him a story all about how to be powerful and how to be strong. This dragon is this little boy's special toy, and he's a power dragon."

And I made up cards with stamps of the dragon on them, and we did "successive approximations." Whenever his grandmother and his dad would drive him to school, the deal was he would get out of the car and say goodbye and close the door and go to his classroom. Then he earned a power dragon because he had shown that he had the power. And then he could trade his power dragons in, and I had him identify a list of activities he was interested in. Most of them were spatial. I brought a set of rubber stamps of Peter Rabbit, the story of Peter Rabbit on different rubber stamps. He wanted to do that. I can't remember all of them. One of the things he wanted to do was go visit a third-grade classroom to see what they do because he was already worried about third grade.

Anyway, we did all this, and he developed a menu of activities, and he decided how many power dragons each one was worth. So some he had to save up three or four power dragons to watch a movie or something, but they were almost all spatial.

Lynda: And the teacher, and everybody went along with this for a period of time?

Chris: Well, I wanted her to help him build a fort in the classroom. I wanted him to have a fort in the back of the classroom where he could see out but no one could see him and he could put up special pictures and stuff in there. She didn't go for that. But she did say he could go to a special place and do these activities.

And, yeah, this was like night and day. Once this kid was told that *he* had the power to decide if it was OK.

We had a staffing with the psychologist. I had coached the psychologist ahead of time about what I wanted him to say. He really told the grandmother that she needed to back off, which she did a little bit, and we also got the child to therapy. I didn't do this singlehandedly. I got a male therapist I really like to start working with him. But he totally turned around. He never had a fit again after that.

Lynda: When was that in the school year?

Chris: That was probably December or January. And we gradually worked it up to where he took the bus, and he had never taken the school bus. He was terrified of taking the school bus, but he wanted to. So I drove over to his house for a couple of days and walked him to the bus stop, and he cried and cried. See, if his grandmother had been there, she would have immediately given in and put him in the car. But I said, "You can do this. Say it to yourself, 'I can do this. I can do this.'"

He would start heaving, like he was going to hyperventilate, but then I said, "Now think about the power dragon and what he's telling the little boy, and just keep telling yourself, 'I can do this'." And so by April, he was taking the bus to and from school by himself.

Lynda: What about the grandmother and the dad? Were they in on any of this?

Chris: They went to family therapy every week, and I made home visits. I don't know. Well, for one thing, the kid had terrible eczema all over his body. And his eczema cleared up, and there was so much other

stuff in the relationship between the dad and the grandma, it was very complicated, and the therapist was working on it. I hope they stayed during the summer. The grandma was getting a lot of attention out of going to therapy. She liked it, and it was paid for by Medicaid, so she was hooked into it, and so they were working on things. The child would throw terrible tantrums at home. He kind of got pushed into it. He had no friends. He had never spent the night at anyone else's house. The therapist was really encouraging him to join Cub Scouts, trying to get the dad to be a Cub Scout leader, get him outside the house a little bit. So those things were in the works. But, the child believed that at the end of the school year that he was going to Iowa to visit his mother at her mother's farm, this summer. He believed he was going to go on a bus to see her. His mother would do that, and then, somehow, it never really worked out that he ever really got to see her, so I don't know what the situation will be when I go back to work.

I think, looking at his strengths and his interests, and he was also very linguistic and he really understood the story about the dragon. It appealed to his intellectuality. He was very bright. Because it succeeded, the teacher started looking at those things. She started asking me about other kids and what I thought about other kids. We talked about different activities she could do with other kids who maybe weren't responding to the activities she had in the room, which were all based on *her* intelligence, which was very logical. She was a very logical teacher.

I could say that all my life, I felt inadequate because what was valued in my family was logic and mathematics. My father is a physical chemist, taught physics and chemistry at West Point, is disgustingly logical about everything. We spent hours arguing as a big family. Friendly arguments. But logic always failed me. And mathematics always failed me, and that was what was identified as smart in my family. So why I got good grades . . . I just figured I was fooling everyone. You know, it was a trick, and I really wasn't smart. So . . . personal liberation.

It wasn't even a matter of forgiveness. It was a just a matter of recognition of myself, and understanding. And then I guess I did forgive my dad because he's so logical he can't see anything else. That was definitely a personal process, too.

When I went to take statistics, I understood very clearly what I needed to do, that it was a conscious choice, and how I could process it the best way for me. I used my own profile to get through the three statistics classes I had to take. Ten years ago I never would have gone back to school because I would do anything to avoid taking a math class — I mean, even get a different degree so I didn't have to take a math

class. So it was very liberating. When you go in and say, "This isn't a strength area for me, but if I do these things to support myself through it, I can do it."

Lynda: What a message that is, not just for you internally, but that you convey that to everybody else.

Chris: Of course, Meghan [Chris' daughter] would say, "Um, well, it doesn't matter what grade I get in math because it isn't one of my strength areas."

I say, "Wait a minute, wait a minute. It doesn't work that way. It means, 'This is something I need to focus on. I need to not have distractions when I'm studying, or I need to keep up with it.' You can't slide, like you can write the story the night before and come up with a 12-page story that they're ready to publish." So it also helps you figure out what your responsibility is. It's not a cop-out.

Lynda: I like that aspect. It helps you figure out what your responsibilities are.

Chris: And that, if you want something, you just figure out what the elements are to get it and where you have to use different kinds of energy and where you need support, and it's OK to ask for help. Now we laugh at things, like when I get lost. We just laugh, as a family.

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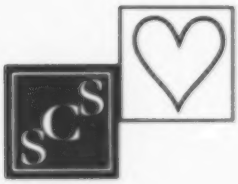

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